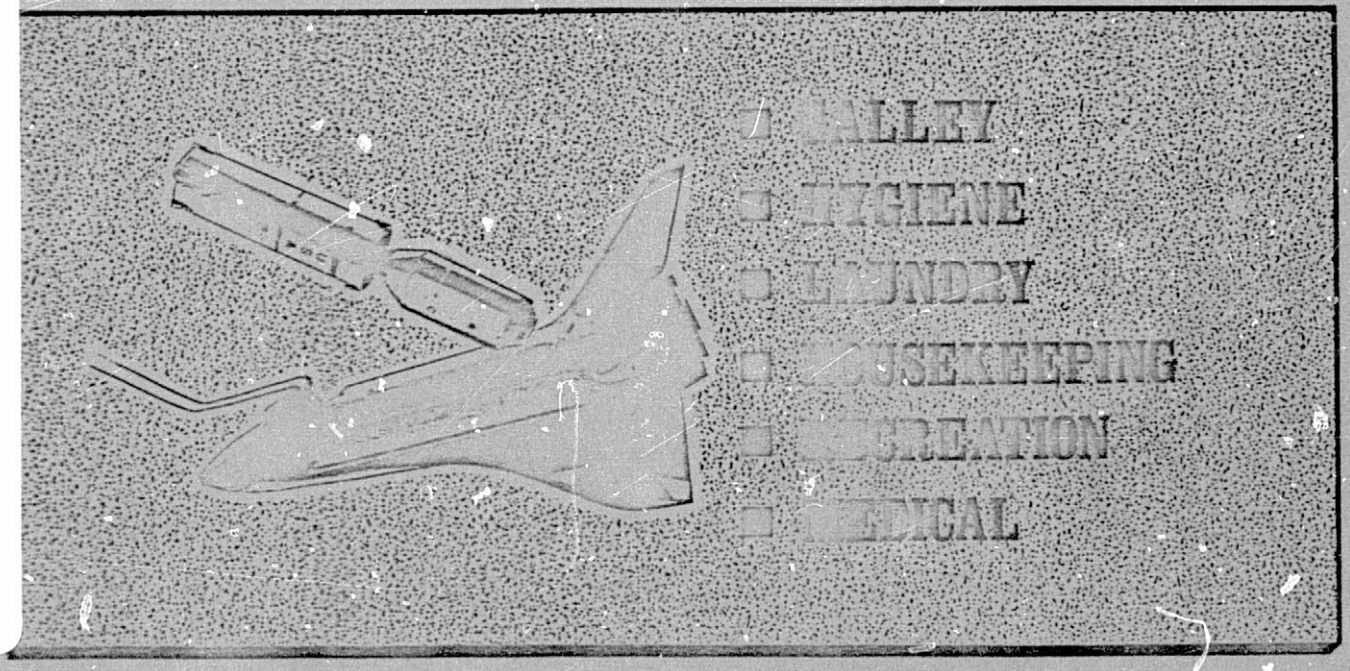
D2-118571-2

NASA CR-
144451

CREW APPLIANCE COMPUTER PROGRAM MANUAL

CREW APPLIANCE STUDY



THE BOEING AEROSPACE COMPANY
SATURN/APOLLO/SKYLAB BRANCH
HOUSTON, TEXAS

AUGUST 29, 1975

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CREW APPLIANCE
COMPUTER PROGRAM MANUAL

Contract NAS 9-13965

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Prepared for

National Aeronautics and Space Administration
Lyndon B. Johnson Space Center
Houston, Texas 77058

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Houston, Texas

REVISIONS

REV. SYM	DESCRIPTION	DATE	APPROVED
A	Refinement of Space Station shower loop solution method viii F-5 G-9 6-9.1* F-9 G-31 6-22 F-11 6-23 F-15 6-24 F-20 through F-33 A-22 F-33.1 F-33.2 *Page 6-9.1 was inserted to explain the new shower solution method. Pages F-33.1 and F-33.2 were added to accommodate the larger GPOLY subroutine listings required with the new method. Simpler method used to compute saturated humidity conditions in SHOWER and WASDRY subroutines. 3-100 A-19 A-27 3-103 A-20 A-31 3-129 A-24 A-32 3-132 A-26 Initial water contained in Space Station clothes washer and dish-washer accumulators changed 6-16 6-32 G-13 6-17 F-6 6-29 F-7 Space Station potable water holding tank capacity revised. F-13 Computer print-out of final results from revised Space Station/ appliances system simulation. G-37 through G-64 Insert Revision Page, Vol. 2 Ai Change Page Number Ai to Ai.1 Ai.1	10-16-75	C. L. Toliver

ABSTRACT

Trade studies of numerous appliance concepts for advanced spacecraft galley, personal hygiene, housekeeping, and other areas were made by the Boeing Aerospace Company, Contract NAS 9-13965, to determine which best satisfy the Space Shuttle Orbiter and Modular Space Station mission requirements. In conjunction with these studies, analytical models of selected appliance concepts not currently included in the G-189A Generalized Environmental/ Thermal Control and Life Support Systems (ETCLSS) Computer Program subroutine library were developed. This document describes the new appliance subroutines with complete analytical model descriptions, solution methods, user's input instructions, and validation run results. The appliance components modeled were integrated with G-189A ETCLSS models for Shuttle Orbiter and Modular Space Station, and results from computer runs of these systems are presented.

KEY WORDS

Appliance
Clothes washer
Dishwasher
Food management
Fortran
Mathematical model
Modular Space Station
Nodal network
Reverse osmosis
Shower
Shuttle Orbiter
Subroutine
Waste collection

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VOLUME I OF II

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VOLUME II OF II

APPENDIX A

G-189A CREW APPLIANCE SUBROUTINE LISTINGS

```
@ FOR CHILLR,CHILLR                                                    25 AUG 75
UNIVAC 1108 FORTRAN V EXEC II LEVEL 25A  -(EXEC8 LEVEL E12010010A)
THIS COMPILATION WAS DONE ON 25 AUG 75 AT 18:40:47

    SUBROUTINE CHILLR     ENTRY POINT 003200

    STORAGE USED: CODE(1) 003207; DATA(0) 000321; BLANK COMMON(2) 000000

     COMMON BLOCKS:

     0003    COMP    000117
     0004    RARRAY  000152
     0005    KANOV   000001
     0006    MISC    000036
     0007    PROPTY  001002
     0010    SOURCE  000102
     0011    KLOC    000006
     0012    MAXRI   000001

    EXTERNAL REFERENCES (BLOCK, NAME)

     0013    CYCLE
     0014    LK
     0015    SHELL
     0016    LV
     0017    PROP
     0020    VV
     0021    PSAT
     0022    QSURR
     0023    NWDU$
     0024    NIO2$
     0025    NERR3$

    STORAGE ASSIGNMENT  (BLOCK, TYPE, RELATIVE LOCATION, NAME)

     0001    001016 100L      0001    001041 125L      0001    001105 150L      0001    001116 152L      0001    001176 155L
     0001    001234 157L      0001    001257 158L      0001    001310 160L      0001    001314 170L      0001    001340 172L
     0001    001345 174L      0000    000267 175F      0001    001443 176L      0001    001477 177L      0001    001554 180L
     0001    001600 185L      0001    001627 195L      0001    000553 20L       0001    001635 200L      0001    001674 210L
     0001    001735 220L      0001    001774 240L      0001    002022 260L      0001    000557 271G      0001    002034 280L
     0001    002053 285L      0001    002055 290L      0001    002125 360L      0000    000056 4CF       0001    002143 400L
     0001    002145 410L      0000    000140 420F      0001    002203 430L      0001    002270 440L      0001    002277 450L
     0001    002302 455L      0001    002317 470L      0001    002405 480L      0001    002414 490L      0001    002417 495L
     0001    002426 496L      0001    002467 498L      0001    000377 5L        0001    002524 500L      0001    002534 510L
     0001    002547 530L      0001    002601 531L      0001    002644 532L      0001    002654 533L      0001    002667 535L
     0001    002662 540L      0001    002733 550L      0001    002736 570L      0001    003006 580L      0001    003012 585L
     0001    003065 587L      0001    003101 590L      0001    000644 60L       0001    003117 600L      0001    003164 620L
     0000    000154 630F      0001    000655 67L       0001    000677 68L       0001    000712 70L       0001    000732 80L
     0001    000755 90L       0001    000763 98L       0001    000777 99L       0010 R  000000 A         0010    000023 B
     0000 R  000022 CAIR      0004 R  000137 CFOODI    0004 R  000136 CFOODO    0000 RL 000010 CHILR     0007    000001 CP
     0010 R  000046 CPA       0010    000047 CPB       0007    000144 CPCONL    0007    000145 CPCONV    0007    000146 CPCO2
     0007    000147 CPDIL     0000 R  000025 CPG       0007    000150 CPOXY     0007    000151 CPTC      0007    000000 CPO
     0013 R  000000 CYCLE     0000 R  000045 C2        0000 R  000041 DELTA     0003    000000 DS        0000 R  000054 DT
     0000 R  000042 DTH       0006 R  000000 DTIME     0000 R  000047 DTYME     0000 R  000017 DUM       0000 R  000032 DUM2
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ORIGINAL PAGE IS OF POOR QUALITY

```
0000 R 000031 DUM3     0000 L 000011 FAN      0007   000152 GAMGAS   0006   000001 GRAV     0000 R 000015 HC
0010   000050 IAI      0010   000051 IBI      0011 I 000000 IK       0011   000001 IKC      0011   000004 IKEX
0011   000002 IKS      0011   000003 IKT      0004   000000 IMAXR    0000   000303 INJPS    0011   000005 IPI
0005 I 000000 K        0006   000002 KFLSYS   0006   000003 KOUTPT   0006   000004 KPDROP   0006   000005 KSYPAS
0006   000006 KTRANS   0000 I 000012 L        0000 I 000000 LCAB     0000 I 000030 LDUM     0000 I 000013 LFLAG
0014 I 000000 LK       0000 I 000050 LL       0000 I 000037 LPASS    0006   000007 LPSUM    0016 I 000000 LV
0006   000014 MAXCI    0006   000015 MAXLP    0012 I 000000 MAXR     0006   000016 MAXSLP   0006   000017 MAXSSI
0006   000024 MINSSI   0003 I 000017 N        0010   000052 NA       0003   000020 NAI      0010   000053 NB
0003   000021 NBI      0003   000022 NC       0003 I 000023 NCAB     0003   000024 NCFL     0006   000020 NCOMPS
0000 I 000027 NDUM     0006 I 000021 NEWDT    0003   000025 NEXT     0003   000026 NEXV     0000 I 000023 NFLAG
0003   000027 NK       0003   000030 NKEX     0003   000031 NKS      0003 I 000032 NKT      0006   000022 NLAST
0003   000033 NLFL     0003   000034 NP       0006   000023 NPASPD   0003 I 000035 NPASS    0003   000036 NPF
0010   000054 NPFS     0010   000055 NPFST    0003   000037 NPFT     0003   000045 NQ       0003   000046 NS
0003   000047 NSF      0010   000063 NSFS     0010   000064 NSFST    0003   000050 NSFT     0003 I 000056 NSTR
0003   000100 NSUBR    0003   000101 NV       0003   000102 NVT      0006   000025 PGMIN    0006   000026 PLMIN
0021 R 000000 PSAT     0000 R 000033 PWCAB    0000 R 000034 PWF      0004 R 000101 QCOOL    0004 R 000151 QDOOR
0000 R 000021 QFAN     0000 R 000020 QFANA    0000 R 000016 QFANF    0000 R 000055 QFREEZ   0000 R 000036 QLAT
0000 R 000014 QREJ     0000 R 000053 Q51      0000 R 000052 Q78      0004 R 000001 R        0007   000154 RHO
0010   000072 RHOA     0010   000073 RHOB     0000 R 000024 RHOG     0007   000153 RHOD     0000 R 000040 R51
0000 R 000035 R98F     0000 R 000046 SG2      0000 R 000044 SG51     0000 R 000043 SG75     0006   000027 START
0006 L 000030 STEADY   0000 L 000027 STEDDY   0004 R 000150 TC       0000 R 000026 TG       0006 R 000031 TIME
0006   000032 TIMEMX   0006   000033 TMAX     0006   000034 TMIN     0005 R 000000 V        0007   000320 VISC
0010   000074 VISCA    0010   000075 VISCB    0007   000317 VISCD    0007   000463 VISGAS   0007   001001 VISLIQ
0020 R 000000 VV       0007   000465 WTM      0010   000076 WTMA     0006   000035 WTMAX    0010   000077 WTMB
0007   000630 WTMCON   0007   000631 WTMDIL   0007   000632 WTMTC    0007   000464 WTMD     0000 R 000051 X
0007   000634 XK       0010   000100 XKA      0010   000101 XKB      0007   000777 XKGAS    0007   001000 XKLIQ
0007   000633 XKD      0003   000103 Y
```

```
      SUBROUTINE CHILLR
C
C        THIS ROUTINE SIMULATES A REFRIGERATOR OR FREEZER
C        COOLED BY A CHILLED LIQUID.  THE CHILLED LIQUID MAY
C        BE FROM EITHER AN EXTERNAL SOURCE OR A SELF-CONTAINED
C        COOLING SYSTEM.  FREEZING OF WATER IN THE FOOD IS
C        ALLOWED, WITH THERMAL PROPERTIES DEPENDENT ON THE
C        ICE/WATER BALANCE.
C
      COMMON /COMP/ DS(15),N,NAI,NBI,NC,NCAB,NCFL,NEXT,NEXV,NK,
     1 NKEX,NKS,NKT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),
     2 NSTR(10),NSUBR,NV,NVT,Y(12)
      COMMON /RARRAY/  IMAXR,R(1)
      COMMON /KANDV/ K
      COMMON /MISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,
     1  LPSUM(5),MAXCI,MAXLP,MAXSLP,MAXSSI,NCOMPS,NEWDT,NLAST,NPASPD,
     2  MINSSI,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX
      COMMON /PROPTY/ CPD,CP(99),CPCGNL,CPCONV,CPCO2,CPDIL,CPOXY,CPTC,
     1  GAMGAS,RHOD,RHO(99),VISCD,VISC(99),VISGAS,WTMD,WTM(99),WTMCON,
     2  WTMDIL,WTMTC,XKD,XK(99),XKGAS,XKLIQ,VISLIQ
      COMMON /SOURCE/  A(19),B(19),CPA,CPB,IAI,IBI,NA,NB,NPFS,NPFST(6),
     1 NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,WTMA,WTMB,XKA,XKB
      COMMON /KLOC/ IK,IKC,IKS,IKT,IKEX,IPI
      COMMON /MAXR1 / MAXR
      DIMENSION V(1),K(1),LCAB(7)
      EQUIVALENCE (V,K), (TC,R(104)), (R(105),QDOOR), (R(94),CFOODO),
     * (R(95),CFOODI), (R(65),QCOOL)
```

A-3

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```
00115    28*          LOGICAL STEADY,STEDDY,CHILR,FAN                                  CHILR028
00116    29*          GSER(G1,G2)=G1*G7/(G1+G2)                                        CHILR029
00117    30*          STEDDY=STEADY                                                    CHILR030
00120    31*          IF (NSTR(16) .EQ. 1) STEDDY=.TRUE.                               CHILR031
00120    32*     C                                                                     CHILR032
00120    33*     C       INITIALIZE CHILLER DATA                                       CHILR033
00120    34*     C                                                                     CHILR034
00122    35*          IF (NPASS .GT.0) GO TO 20                                        CHILR035
00124    36*          IF (ABS(R(51)).LT. 1.E-9) R(51)=-9.5                             CHILR036
00126    37*          IF (R(54) .LT. .0001) R(54)=70.                                  CHILR037
00130    38*          IF (R(55) .LT. .0001) R(55)=33.5                                 CHILR038
00132    39*          IF (R(57) .LT. .0001) R(57)=70.                                  CHILR039
00134    40*          IF (R(58) .LT. .0001) R(58)=11.0                                 CHILR040
00136    41*          IF (R(60) .LT. .0001) R(60)=70.                                  CHILR041
00140    42*          IF (R(61) .LT. .0001) R(61)=.20                                  CHILR042
00142    43*          IF (R(63) .LT. .0001) R(63)=68.                                  CHILR043
00144    44*          IF (R(64) .LT. .0001) R(64)=1.48                                 CHILR044
00146    45*          IF (ABS(R(66)).LT. 1.E-9) R(66)=-8.5                             CHILR045
00150    46*          IF (R(67) .LT. 1.E-9) R(67)=.63                                  CHILR046
00152    47*          IF (R(68) .LT. .0001) R(68)=4.63                                 CHILR047
00154    48*          IF (R(69) .LT. .0001) R(69)=4.13                                 CHILR048
00156    49*          IF (R(70) .LT. .0001) R(70)=1.0                                  CHILR049
00160    50*          IF (R(71) .LT. .0001) R(71)=16.                                  CHILR050
00162    51*          IF (R(72) .LT. .0001) R(72)=135.                                 CHILR051
00164    52*          IF (R(73) .LT. .0001) R(73)=.17                                  CHILR052
00166    53*          IF (R(74) .LT. .0001) R(74)=3.8                                  CHILR053
00170    54*          IF (ABS(R(75)).LT. 1.E-9) R(75)=-8.6                             CHILR054
00172    55*          IF (R(76) .LT. .0001) R(76)=3.5                                  CHILR055
00174    56*          IF (R(78) .LT. .0001) R(78)=18.57                                CHILR056
00176    57*          IF (R(82) .LT. .0001) R(82)=260.                                 CHILR057
00200    58*          IF (ABS(R(83)).LT. 1.E-9) R(83)=-10.5                            CHILR058
00202    59*          IF (ABS(R(84)).LT. 1.E-9) R(84)=-7.                              CHILR059
00204    60*          IF (R(96) .LT. .0001) R(96)=70.                                  CHILR060
00206    61*          IF (R(97) .LT. .0001) R(97)=.075                                 CHILR061
00210    62*          IF (R(98) .LT. .0001) R(98)=.0078                                CHILR062
00212    63*          IF (R(99) .LT. .0001) R(99)=.24                                  CHILR063
00214    64*          IF (R(100) .LT. 1.E-9) R(100)=.364                               CHILR064
00216    65*          IF (R(103) .LT. 1.E-9) R(103)=3.8                                CHILR065
00220    66*          IF (ABS(R(104)) .GT. 1.E-9) GO TO 5                              CHILR066
00222    67*          R(104)=A(2)                                                      CHILR067
00223    68*          IF (NSTR(1).EQ.1 .AND. NSTR(6).EQ.0) R(104)=-10.                 CHILR068
00225    69*          IF (NSTR(1).EQ.1 .AND. NSTR(6).EQ.1) R(104)=R(102)               CHILR069
00227    70*        5 CONTINUE                                                         CHILR070
00230    71*          IF (R(106) .LT. .0001) R(106)=75.**3.412                         CHILR071
00232    72*          IF (R(107) .LT. .0001) R(107)=5.                                 CHILR072
00234    73*          IF (NSTR(1)*NSTR(2) .EQ.1) R(107)=0.                             CHILR073
00236    74*          IF (R(108) .LT. 1.E-9) R(108)=1.0                                CHILR074
00240    75*          IF (R(115) .LT. 1.E-9) R(115)=.5                                 CHILR075
00242    76*          IF (R(116) .LT. 1.E-9) R(116)=.5                                 CHILR076
00244    77*          IF (R(119) .LT. .0001) R(119)=.49                                CHILR077
00246    78*          IF (R(120) .LT. 1.E-9) R(120)=.129                               CHILR078
00250    79*          IF (ABS(R(121)) .LT. 1.E-9) R(121)=97.                           CHILR079
00252    80*          IF (STEADY) GO TO 20                                             CHILR080
00254    81*       10 K(NKT+4)=IFIX(TIME/3600./24.)                                    CHILR081
00255    82*          IF (K(NKT+1) .EQ. 0) K(NKT+1)=125                                CHILR082
00257    83*          IF (R(51).GT. 32.00001) R(117)=0.                                CHILR083
00261    84*          IF (R(51).LT. 31.99999) R(117)=1.                                CHILR084
00263    85*          IF (R(75).GT. 32.00001) R(118)=0.                                CHILR085
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00265     86*          IF (R(75).LT. 31.99999) R(118)=1.                          CHILR086
00267     87*       20 R(1)=A(1)                                                  CHILR087
00270     88*          DO 30 L=3,19                                               CHILR088
00273     89*       30 R(L)=A(L)                                                  CHILR089
00275     90*          R(3)=A(4)                                                  CHILR090
00276     91*          IF (NEWDT .LT. 0) RETURN                                   CHILR091
00300     92*          R(2)=A(2)                                                  CHILR092
00301     93*          IF (NSTR(17).NE.0) WRITE (6,40) N                          CHILR093
00305     94*       40 FORMAT (///' COMPONENT NO.', I5, ' CHECKOUT OF CHILLR'/)   CHILR094
00306     95*          LFLAG=-2                                                   CHILR095
00307     96*          QREJ=0.                                                    CHILR096
00310     97*          R(109)=0.                                                  CHILR097
00310     98*    C                                                                CHILR098
00310     99*    C        FAN AND CHILLER ON/OFF LOGIC                            CHILR099
00310    100*    C                                                                CHILR100
00311    101*          HC=0.                                                      CHILR101
00312    102*          CHILR=.FALSE.                                              CHILR102
00313    103*          FAN=.FALSE.                                                CHILR103
00314    104*          QFANF=0.                                                   CHILR104
00315    105*          IF (NSTR(2) .GT. 0) QFANF=R(89)*(R(87)-R(51))              CHILR105
00317    106*          IF (STEADY) GO TO 67                                       CHILR106
00321    107*          IF (NSTR(1).EQ.1 .OR. NSTR(2).EQ. 2) GO TO 60              CHILR107
00323    108*          GO TO 68                                                   CHILR108
00324    109*       60 IF (NSTR(3)-1) 65, 70, 80                                  CHILR109
00327    110*       65 IF (R(113) .LT. .5) GO TO 68                               CHILR110
00331    111*       67 IF (NSTR(1) .EQ. 1) CHILR=.TRUE.                           CHILR111
00333    112*          IF (NSTR(2) .GT. 0) FAN=.TRUE.                             CHILR112
00335    113*          K(NKT+2)=1                                                 CHILR113
00336    114*          GO TO 90                                                   CHILR114
00337    115*       68 IF (NSTR(2) .EQ. 1) FAN=.TRUE.                             CHILR115
00341    116*          K(NKT+2)=0                                                 CHILR116
00342    117*          GO TO 90                                                   CHILR117
00343    118*       70 IF (R(51) .GT. R(84)) GO TO 67                             CHILR118
00345    119*          IF (R(51) .LT. R(83)) GO TO 68                             CHILR119
00347    120*          IF (K(NKT+2) .EQ. 1) GOTO 67                               CHILR120
00351    121*          GO TO 68                                                   CHILR121
00352    122*       80 DUM=CYCLE( (R(110)+R(111)) *60.,  R(112)*60.)              CHILR122
00353    123*          IF (DUM.LT. R(110)*60.) GO TO 67                           CHILR123
00355    124*          GO TO 68                                                   CHILR124
00356    125*       90 IF (FAN) GO TO 98                                          CHILR125
00360    126*          QFANA=0.                                                   CHILR126
00361    127*          QFAN=0.                                                    CHILR127
00362    128*          CAIR=0.                                                    CHILR128
00363    129*          GO TO 100                                                  CHILR129
00364    130*       98 QFAN=R(91)*(1.-R(92))*3.412                                CHILR130
00365    131*          QFANA=R(91)*R(92)*3.412                                    CHILR131
00366    132*          NFLAG=-2                                                   CHILR132
00367    133*          GO TO 150                                                  CHILR133
00370    134*       99 CAIR=R(101)*60.*RHOG*CPG                                   CHILR134
00371    135*          HC=R(85)                                                   CHILR135
00372    136*          IF (.NOT. STEADY) GO TO 100                                CHILR136
00374    137*          QFAN=QFAN*R(93)                                            CHILR137
00375    138*          QFANA=QFANA*R(93)                                          CHILR138
00375    139*    C                                                                CHILR139
00375    140*    C        ADD EFFECT OF OPENING DOOR                              CHILR140
00375    141*    C                                                                CHILR141
00376    142*      100 QDOOR=0.                                                   CHILR142
00377    143*          NFLAG=2                                                    CHILR143
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00377      C               DETERMINE AMBIENT AIR PROPERTIES
00400            IF (STEADY) GO TO 150
00402            IF (NSTR(5) .EQ. 1) GO TO 125
00404            IF (TIME .LT. R(114)) GO TO 160
00406            R(114)=R(114)+24.*3600./R(71)
00407            GO TO 150
00410        125 L=K(NKT+1)
00411            IF (TIME .LT. R(L)*3600.) GO TO 160
00413            R(L)=R(L)+24.
00414            K(NKT+1)=K(NKT+1)+1
00415            IF (R(L+1) .LT. .0001 .OR. K(NKT+1).GT.MAXR) K(NKT+1)=125
00417        150 IF (NSTR(4) .EQ. 0) GO TO 152
00421            TG=R(96)
00422            RHOG=R(97)
00423            CPG=R(99)
00424            GO TO 155
00425        152 NDUM=LK(NCAB,3)
00426            CALL SHELL(LCAB,3,NDUM,2,2)
00427            L=MOD(K(IK+2), 100)
00430            LDUM=LV(NCAB,1)
00431            CALL PROP(V(LDUM),L,LCAB,CPG,DUM3,RHOG,DUM,DUM2)
00432            TG=V(LDUM+1)
00433            R(98)=VV(NCAB,108)/VV(NCAB,107)
00434        155 IF (NFLAG .LT. 0) GO TO 99
00434      C               DETERMINE AMT. OF WATER CONDENSED
00436            PWCAB=RHOG*1544.*(TG+460.)*R(98)/18.016/144.
00437            PWF=PSAT(R(51))
00440            IF (R(51).LT.0.) PWF=0.
00442            IF (PWCAB.GT.PWF) GO TO 157
00444            R98F=R(98)
00445            GO TO 158
00446        157 QLAT=1220.
00447            IF (R(51).GT.32.) QLAT=1060.
00451            R98F=18.016*PWF*144./ (1544.*RHOG*(TG+460.))
00451      C               COMPUTE HEAT INPUT FROM DOOR AIR EXCHANGE
00452        158 QDOOR=RHOG*(R(68)-R(69)) *R(70)*(CPG*(TG-R(51))+(R(98)-R98F)*QLAT)
00453            IF (STEADY) QDOOR=QDOOR/24.*R(71)
00455            IF (.NOT.STEADY) QDOOR=QDOOR/DTIME*3600.
00455      C
00455      C         STEDDY STATE CASE WITH FAN OFF - TEMPERATURES
00455      C
00457        160 IF (FAN .OR. (.NOT.STEDDY)) GO TO 200
00461            LPASS=0
00462        170 LPASS=LPASS+1
00463            R51=R(51)
00464            IF (NSTR(1).GT.0) GO TO 172
00466            TC=(A(1)*CPA*A(2) +R(82)*R51) /(A(1)*CPA+R(82))
00467            GO TO 177
00470        172 IF (NSTR(6).EQ.0) GO TO 174
00472            TC=R(102)
00473            GO TO 177
00474        174 IF (NPASS.GT.3) GO TO 176
00476            CALL QSURR
00477            DUM=R(87)+R(52)
00500            DUM2=R(106)*R(67)-R(107)*R(108)*3.412
00501            TC=(DUM*(R(120)*R(121)-DUM2) +R(82)*(R(52)*R(54)+QDOOR))/
00501          * (DUM*(R(82)+R(120)) -R(82)*R(82))
00502            R51=R(51)
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00503     202*          R(51)=(R(52)*R(54) +R(82)*TC +QDOOR)/DUM                                  CHILR202
00504     203*          LPASS=LPASS+1                                                             CHILR203
00505     204*          IF ( (LPASS/2)*2 .EQ.LPASS) GO TO 174                                     CHILR204
00507     205*          R(67)=R(67) *(R(54)-R(66)) / (R(54)-R(51))                                CHILR205
00510     206*          IF (LPASS.LT.13) GO TO 174                                                CHILR206
00512     207*      176 IF (LPASS.EQ.1) R(67)=R(67) *(R(54)-R(66))/(R(54)-R(51))                  CHILR207
00514     208*          DUM2=R(106)*R(67)-R(107)*R(108)*3.412                                     CHILR208
00515     209*          TC=(R(82)*R(51) +R(120)*R(121) -DUM2)/ (R(82)+R(120))                     CHILR209
00516     210*      177 CALL QSURR                                                                CHILR210
00517     211*          R(51)=TC+(QDOOR+QFANF-R(53)) /R(82)                                       CHILR211
00520     212*          DELTA=ABS(R(51)-R51)                                                      CHILR212
00521     213*          IF (LPASS.LT.25 .AND. DELTA.GT. .001) GO TO 170                           CHILR213
00523     214*          R(75)=R(51)                                                               CHILR214
00524     215*          R(77)=R(51)                                                               CHILR215
00525     216*          R(79)=TC                                                                  CHILR216
00526     217*          LFLAG=2                                                                   CHILR217
00527     218*          IF (NSTR(1).EQ.1) GO TO 180                                               CHILR218
00531     219*          R(2)=TC                                                                   CHILR219
00532     220*          QCOOL=A(1)*CPA*(TC-A(2))                                                  CHILR220
00533     221*          GO TO 496                                                                 CHILR221
00534     222*      180 IF (NSTR(6).EQ.0) GO TO 185                                               CHILR222
00536     223*          QCOOL=(R(82)*(R(51)-TC) + R(120)*(R(121)-TC)) *R(67)                      CHILR223
00537     224*          R(109)=QCOOL/R(100)/3.412                                                 CHILR224
00540     225*          QREJ= QCOOL *(1.+1./R(100))                                               CHILR225
00541     226*          GO TO 195                                                                 CHILR226
00542     227*      185 QREJ=R(106)*R(67)*(1.+1./R(100)) + R(107)*3.412*(1.-R(108))               CHILR227
00543     228*          QCOOL=R(106)*R(67) - R(107)*3.412*R(108)                                  CHILR228
00544     229*          R(109)=R(107)+R(106)*R(67)/R(100)/3.412                                   CHILR229
00545     230*      195 R(2)=A(2)+QREJ/A(1)/CPA                                                   CHILR230
00546     231*          GO TO 496                                                                 CHILR231
00546     232*      C                                                                             CHILR232
00546     233*      CC        GET COMPUTING TIME INCREMENT                                        CHILR233
00546     234*      C                                                                             CHILR234
00546     235*          DTH=DTIME/3600.                                                           CHILR235
00547     236*      200 IF (.NOT.STEDDY) GO TO 210                                                CHILR236
00550     237*          IF (R(51).GT. 32.00001) R(117)=0.                                         CHILR237
00552     238*          IF (R(51).LT. 31.99999) R(117)=1.                                         CHILR238
00554     239*          IF (R(75).GT. 32.00001) R(118)=0.                                         CHILR239
00556     240*          IF (R(75).LT.31.99999)  R(118)=1.                                         CHILR240
00560     241*      210 CALL QSURR                                                                CHILR241
00562     242*      C       INNER FOOD NODE                                                       CHILR242
00562     243*          SG75=R(78)                                                                CHILR243
00563     244*          IF (R(118).GT. .5) SG75=SG75*R(76)                                        CHILR244
00564     245*          IF (STEDDY) GO TO 220                                                     CHILR245
00566     246*          CFOODI=R(72)*(1.-R(73))                                                   CHILR246
00570     247*          DUM=R(116)*CFOODI/ (1.-R(116))                                            CHILR247
00571     248*          CFOODI=CFOODI*R(119)+DUM*( R(118)*.46+(1.-R(118)))                        CHILR248
00572     249*      C       OUTER FOOD NODE                                                       CHILR249
00572     250*      220 SG51=R(52)+R(82)+SG75                                                     CHILR250
00573     251*          IF (NSTR(2) .GT. 0) SG51=SG51+R(89)                                       CHILR251
00574     252*          DUM2=0.                                                                   CHILR252
00576     253*          IF (CAIR.LT. 1.E-5) GO TO 240                                             CHILR253
00577     254*          DUM2=GSER(R(81), R(80))*HC                                                CHILR254
00601     255*          DUM2=GSER(DUM2,CAIR)                                                      CHILR255
00602     256*          SG51=SG51+DUM2                                                            CHILR256
00603     257*      240 IF (STEDDY) GO TO 260                                                     CHILR257
00604     258*          CFOODO=R(72)*R(73)                                                        CHILR258
00606     259*          DUM=R(115)*CFOODO/ (1.-R(115))                                            CHILR259
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00610     260*          CFOODO=CFOODO*R(119)+DUM*( R(117)*.46+ (1.-R(117)))                    CHILR260
00611     261*          CFOODO=CFOODO+R(74)                                                    CHILR261
00611     262*    C        COOLING COILS                                                       CHILR262
00612     263*      260 C2=R(103)                                                              CHILR263
00613     264*          IF (NSTR(1) .EQ.1) GO TO 280                                           CHILR264
00615     265*          SG2=A(1)*CPA +R(82)+DUM2                                               CHILR265
00616     266*          GO TO 290                                                              CHILR266
00617     267*      280 IF (CHILR .AND. NSTR(6).EQ.1) GO TO 285                                CHILR267
00621     268*          SG2=R(82)+DUM2+R(120)                                                  CHILR268
00622     269*          GO TO 290                                                              CHILR269
00623     270*      285 SG2=1.E-20                                                             CHILR270
00623     271*    C                                                                            CHILR271
00624     272*      290 IF (STEDDY) GO TO 360                                                  CHILR272
00626     273*          DTYME=AMIN1(DTH,.4*CFOODI/SG75,.4*CFOODO/SG51,.4*C2/SG2)               CHILR273
00627     274*          LL=IFIX(DTH/DTYME+.99)                                                 CHILR274
00630     275*          DTYME=DTH/FLOAT(LL)                                                    CHILR275
00631     276*          GO TO 400                                                              CHILR276
00632     277*      360 X=.4/AMAX1(SG75,SG51,SG2)                                              CHILR277
00633     278*          LL=1                                                                   CHILR278
00633     279*    C                                                                            CHILR279
00633     280*    C        THERMAL BALANCE (ALLOW FOR FREEZING)                                CHILR280
00633     281*    C                                                                            CHILR281
00634     282*      400 LPASS=0                                                                CHILR282
00635     283*          QREJ=0.                                                                CHILR283
00636     284*      410 LPASS=LPASS+1                                                          CHILR284
00637     285*          DELTA=0.                                                               CHILR285
00640     286*          CALL QSURR                                                             CHILR286
00640     287*    C        OUTER FOOD NODE                                                     CHILR287
00641     288*          R51=R(51)                                                              CHILR288
00642     289*          Q78= SG75*( R(75)-R51)                                                 CHILR289
00643     290*          Q51=Q78+QFANF+R(82)*(TC-R51)+R(81)*HC*(R(77)-R51)-R(53)+QDOOR          CHILR290
00644     291*          IF (.NOT.STEDDY) GO TO 430                                             CHILR291
00646     292*          DT=Q51*X                                                               CHILR292
00647     293*          GO TO 450                                                              CHILR293
00650     294*      430 DT=Q51*DTYME/CFOODO                                                    CHILR294
00651     295*          IF (R51.LT.31.99999 .OR. R51+DT .GT.32.00001) GO TO 450                CHILR295
00653     296*          IF (Q51.GE.0.) GO TO 450                                               CHILR296
00655     297*          QFREEZ=R(72)*R(73)*R(115)/ (1.-R(115))*(1.-R(117)) *144.               CHILR297
00656     298*          IF (-Q51*DTYME .GE. QFREEZ) GO TO 440                                  CHILR298
00660     299*          DT=32.0-R51                                                            CHILR299
00661     300*          R(51)=32.0                                                             CHILR300
00662     301*          R(117)=R(117)-Q51/QFREEZ*(1.-R(117))*DTYME                             CHILR301
00663     302*          GO TO 455                                                              CHILR302
00664     303*      440 DT=(Q51*DTYME+QFREEZ) /CFOODO                                          CHILR303
00665     304*          R(117)=1.0                                                             CHILR304
00666     305*      450 R(51)=R51+DT                                                           CHILR305
00667     306*      455 IF (ABS(DT).GT.DELTA) DELTA=ABS(DT)                                    CHILR306
00667     307*    C        INNER FOOD NODE                                                     CHILR307
00671     308*          IF (.NOT.STEDDY) GO TO 470                                             CHILR308
00673     309*          DT=-Q78*X                                                              CHILR309
00674     310*          GO TO 490                                                              CHILR310
00675     311*      470 DT=-Q78*DTYME/CFOODI                                                   CHILR311
00676     312*          IF (R(75).LT.31.99999 .OR. R(75)+DT .GT.32.00001) GO TO 490            CHILR312
00700     313*          IF (Q78.LE.0.) GO TO 490                                               CHILR313
00702     314*          QFREEZ=R(72)*(1.-R(73)) *R(116)/(1.-R(116)) *(1.-R(118)) *144.         CHILR314
00703     315*          IF (Q78*DTYME .GE. QFREEZ) GO TO 480                                   CHILR315
00705     316*          DT=32.0-R(75)                                                          CHILR316
00706     317*          R(75)=32.0                                                             CHILR317
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00707     318*          R(118)=R(118)+Q70/QFRFEZ*(1.-R(118))*DTYME                                  CHILR318
00710     319*          GO TO 495                                                                   CHILR319
00711     320*     480  DT=(-Q70*DTYME+QFREEZ)/cFOODI                                              CHILR320
00712     321*          R(118)=1.0                                                                  CHILR321
00713     322*     490  R(75)=R(75)+DT                                                             CHILR322
00714     323*     495  IF (ABS(DT).GT.DELTA) DELTA=ABS(DT)                                        CHILR323
00714     324*     C         FAN                                                                    CHILR324
00716     325*     496  IF (NSTR(2).EQ.0) GO TO 498                                              CHILR325
00720     326*          DUM=R(57)+460.                                                              CHILR326
00721     327*          DUM2=R(87)+460.                                                             CHILR327
00722     328*          DUM=.1714E-8*R(88)*(DUM*DUM+DUM2*DUM2)*(DUM+DUM2)                           CHILR328
00723     329*          R(87)=(QFAN-QFANF*DUM*R(57)+R(90)*R(54)+R(86)*R(60))                        CHILR329
00723     330*         * / (DUM+R(90)+R(86))                                                        CHILR330
00724     331*     498  IF (LFLAG.GT.0) GO TO 585                                                 CHILR331
00724     332*     C         COOLANT - EXTERNAL COOLANT CIRCUIT                                     CHILR332
00726     333*          IF (NSTR(1) .EQ. 1) GO TO 530                                               CHILR333
00730     334*          DUM=R(82)*(R51-TC)+A(1)*CPA*(A(2)-TC)+HC*R(80)*(R(79)-TC)                   CHILR334
00731     335*          IF (.NOT.STEDDY) GO TO 500                                                  CHILR335
00733     336*          DT=DUM*X                                                                    CHILR336
00734     337*          GO TO 510                                                                   CHILR337
00735     338*     500  DT=DUM*DTYME/ (R(103)+A(1)*CPA*DTYME)                                      CHILR338
00736     339*     510  TC=TC+DT                                                                   CHILR339
00737     340*          R(2)=TC                                                                     CHILR340
00740     341*          QCOOL=A(1)*CPA*(TC-A(2))                                                    CHILR341
00741     342*          GO TO 570                                                                   CHILR342
00741     343*     C         SELF-CONTAINED CHILLER - CONDENSER COOLANT OUTLET                      CHILR343
00742     344*     530  IF (CHILR .AND. NSTR(6).EQ.1) GO TO 535                                   CHILR344
00744     345*          DUM=R(120)*(R(121)-TC) +HC*R(80)*(R(79)-TC)+R(82)*(R51-TC)                  CHILR345
00745     346*          IF (NSTR(6).EQ.0) GO TO 531                                                 CHILR346
00747     347*          QCOOL=DUM                                                                   CHILR347
00750     348*          GO TO 533                                                                   CHILR348
00751     349*     531  QCOOL=-R(107)*3.412*R(108)                                                CHILR349
00752     350*          R(109)=R(107)                                                               CHILR350
00753     351*          QREJ=R(107)*3.412*(1.-R(108))                                               CHILR351
00754     352*          IF (.NOT.CHILR) GO TO 532                                                   CHILR352
00756     353*          DUM2=R(106)                                                                 CHILR353
00757     354*          IF (STEADY) DUM2=DUM2*R(67)                                                 CHILR354
00761     355*          QCOOL=QCOOL+DUM2                                                            CHILR355
00762     356*          R(109)=R(107)+DUM2/R(100)/3.412                                             CHILR356
00763     357*          QREJ=QREJ+DUM2*(1.+1./R(100))                                               CHILR357
00764     358*     532  R(2)=A(2)+QREJ/A(1)/CPA                                                    CHILR358
00765     359*          DUM=DUM-QCOOL                                                               CHILR359
00766     360*     533  IF (.NOT.STEDDY) GO TO 540                                                CHILR360
00770     361*          DT=DUM*X                                                                    CHILR361
00771     362*          GO TO 550                                                                   CHILR362
00772     363*     540  DT=DUM*DTYME/R(103)                                                        CHILR363
00773     364*          GO TO 550                                                                   CHILR364
00774     365*     535  DT=R(102)-TC                                                               CHILR365
00775     366*          QCOOL=R(82)*(R51)-R(102)) + HC*R(80)*(R(79)-R(102))                         CHILR366
00775     367*         *   + R(120)*(R(121)-R(102))                                                CHILR367
00776     368*          IF (STEADY) QCOOL=QCOOL*R(67)                                               CHILR368
01000     369*          QREJ=QCOOL*(1.+1./R(100))                                                   CHILR369
01001     370*          R(109)=QCOOL/R(100)/3.412                                                   CHILR370
01002     371*          R(2)=A(2)+QREJ/A(1)/CPA                                                     CHILR371
01003     372*     550  TC=TC+DT                                                                   CHILR372
01004     373*     570  IF (ABS(DT) .GT. DELTA) DELTA=ABS(DT)                                     CHILR373
01004     374*     C                                                                              CHILR374
01006     375*          IF (CAIR.LT. 1.E-6) GO TO 580                                               CHILR375
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01010     376*          DUM=CAIR+HC*R(81)                                                  CHILR376
01011     377*          R(79)=((QFANA/HC+TC*R(80))*DUM+CAIR*R(81)*R(51))                   CHILR377
01011     378*         * / (R(80)*DUM+CAIR*R(81))                                          CHILR378
01012     379*          R(77)=(HC*R(81)*R(51)+CAIR*R(79))/DUM                              CHILR379
01013     380*          GO TO 585                                                          CHILR380
01014     381*      580 R(77)=R(51)                                                        CHILR381
01015     382*          R(79)=TC                                                           CHILR382
01015     383*      C                                                                      CHILR383
01016     384*      585 IF (NSTR(17) .EQ. 0) GO TO 587                                     CHILR384
01020     385*          DUM=TIME/3600.                                                     CHILR385
01021     386*          WRITE (6,175) TIME,DUM,QFAN,QFANA,QFANF,CPG,QCOOL,RHOG,TG,         CHILR386
01021     387*         * QDOOR,CPA,K(NK1+2),R(53)                                          CHILR387
01040     388*      175 FORMAT (//' TIME =',G12.5,' SEC =',G12.5, ' HRS ',                 CHILR388
01040     389*         * '  QFAN=',G12.5, '  QFANA=',G12.5, '  QFANF=',G12.5/            CHILR389
01040     390*         * ' CPG=',G12.5, '  QCOOL=',G12.5,'  RHOG=',G12.5,'  TG=',G12.5,  CHILR390
01040     391*         * '  QDOOR=',G12.5, '  CPA=',G12.5/                              CHILR391
01040     392*         * ' K(17)=',I3, ' R(53)=',G12.5)                                   CHILR392
01041     393*          WRITE (6,420) CFOODO,CFOODI,CAIR                                   CHILR393
01046     394*      420 FORMAT (1H+,T38, '  CFOODO=',G12.5, '  CFOODI=',G12.5,          CHILR394
01046     395*         * '  CAIR=',G12.5 )                                                CHILR395
01047     396*          WRITE (6,630) HC,SG51,SG75, SG2,X,Q51                              CHILR396
01057     397*      630 FORMAT ( '  HC=',G12.5, '  SG51=',G12.5, '  SG75=',G12.5,       CHILR397
01057     398*         * '  SG2=',G12.5, '  X=',G12.5, '  Q51=',G12.5)                  CHILR398
01060     399*      587 IF (LFLAG.GT.0) GO TO 600                                          CHILR399
01062     400*          IF (STEDDY) GO TO 590                                              CHILR400
01064     401*          IF (LPASS.LT.LL) GO TO 410                                         CHILR401
01066     402*          GO TO 600                                                          CHILR402
01067     403*      590 IF (LPASS.LT.25 .AND. DELTA.GT..001) GO TO 410                     CHILR403
01071     404*      600 R(53)=R(53)+QFAN-QFANF-QDOOR                                       CHILR404
01072     405*          IF (NSTR(1).EQ.1) R(53)=R(53)+R(120)*(TC-R(121))                   CHILR405
01072     406*      C       ADJUST STEADY STATE DUTY CYCLE                                 CHILR406
01074     407*          IF ((.NOT.STEDDY) .OR. LFLAG.GT.0) GO TO 620                       CHILR407
01076     408*          IF (NSTR(1).EQ.0 .OR. NSTR(6).NE.0) GO TO 620                      CHILR408
01100     409*          R(67)=R(67) * (R(54)-R(66)) / (R(54)-R(51))                        CHILR409
01101     410*      620 CONTINUE                                                           CHILR410
01102     411*          RETURN                                                             CHILR411
01103     412*          END                                                                CHILR412

          END OF COMPILATION:        NO  DIAGNOSTICS.
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@ FOR FTRAY,FTRAY                                                    25 AUG 75
UNIVAC 1108 FORTRAN V EXEC II LEVEL 25A  -(EXEC8 LEVEL E12010010A)
THIS COMPILATION WAS DONE ON 25 AUG 75 AT 18:40:54

    SUBROUTINE FTRAY      ENTRY POINT 001575

    STORAGE USED: CODE(1) 001607; DATA(0) 000237; BLANK COMMON(2) 000000

     COMMON BLOCKS:

     0003    COMP    000117
     0004    RARRAY  000150
     0005    KANDV   000001
     0006    MISC    000036
     0007    SOURCE  000102

    EXTERNAL REFERENCES (BLOCK, NAME)

     0010    QSURR
     0011    NWDUS
     0012    NIO2S
     0013    SQRT
     0014    NIO1S
     0015    NERR3S

    STORAGE ASSIGNMENT  (BLOCK, TYPE, RELATIVE LOCATION, NAME)

     0000      000043  10F       0001      001042  190L      0001      001045  110L      0001      000004  115G      0001      001173  120L
     0001      001271  130L      0001      001337  140L      0001      000065  15L       0001      001343  150L      0001      000236  171G
     0001      001346  190L      0001      001351  200L      0001      000325  220G      0001      001431  240L      0001      001441  270L
     0001      001457  300L      0001      000642  302G      0000      000054  310F      0001      001443  403G      0001      001420  474G
     0001      000704  50L       0001      001542  535G      0001      000714  60L       0001      000752  70L       0001      000753  75L
     0001      000777  77L       0001      001027  80L       0001      001033  90L       0007   R  000000  A         0000   R  000016  ASP
     0007      000023  B         0000   R  000513  COND      0007   R  000046  CPA       0007      000007  CPB       0000   R  000040  DELTA
     0003      000000  DS        0000   R  000041  DT        0000   R  000024  DTH       0006   R  000000  DTIME     0000   R  000025  DTYME
     0000   R  000007  DUM       0004   R  000186  GMAX      0006      000001  GRAV      0000   R  000015  H         0007      000050  IAI
     0007      000051  I61       0004      000000  IMAXR     0000      000212  INJPS     0000   I  000012  JF        0000   I  000011  JL
     0005   I  000000  K         0006      000002  KFLSYS    0006      000003  KOUTPT    0006      000004  KPDPOP    0006      000005  KSYPAS
     0006      000006  KTRANS    0000   I  000010  L         0000   I  000023  LL        0000   I  000026  LPASS     0006      000007  LPSUM
     0006      000014  MAXCI     0006      000015  MAXLP     0006      000016  MAXSLP    0006      000017  MAXSSI    0006      000024  MINSSI
     0003   I  000017  N         0007      000052  NA        0003      000020  NAI       0007      000053  NB        0003      000021  NB1
     0003      000022  NC        0003      000023  NCAB      0003      000024  NCFL      0006      000020  NCOMPS    0006   I  000021  NEWDT
     0003      000025  NEXT      0003      000026  NEXV      0003      000027  NK        0003      000030  NKEX      0003   I  000031  NKS
     0003      000032  NKT       0006      000022  NLAST     0003      000033  NLFL      0003      000034  NP        0006      000023  NPASPD
     0003      000032  NKT       0006      000022  NLAST     0003      000033  NLFL      0003      000034  NP        0006      000023  NPASPD
     0003   I  000035  NPASS     0003      000036  NPF       0007      000054  NPFS      0007      000055  NPFST     0003      000037  NPFT
     0003      000045  NQ        0003      000046  NS        0003      000047  NSF       0007      000063  NSFS      0007      000064  NSFST
     0003      000050  NSFT      0003   I  000056  NSTR      0003      000100  NSUBR     0003      000101  NV        0003      000102  NVT
     0006      000025  PGMIN     0006      000026  PLMIN     0000   R  000034  Q         0000   R  000037  QA3       0000   R  000027  QPIR
     0000   R  000042  QUELT     0000   R  000036  QW4       0000   R  000034  Q12       0000   R  000035  Q15       0000   R  000032  Q23
     0000   R  000031  Q25       0000   R  000030  Q34       0000   R  000033  Q45       0004   R  000001  R         0000   R  000014  RAD
     0007      000072  RHOA      0007      000073  RHOB      0000   R  000017  SG1       0000   R  000020  SG2       0000   R  000021  SG5
     0006      000027  START     0006   L  000030  STEADY    0000   L  000006  STEDDY    0004   R  000063  TAVG      0006      000031  TIME
     0006      000032  TIMEMX    0006      000033  TMAX      0006      000034  TMIN      0004   R  000107  TI        0004   R  000110  T2
     0004   R  000111  T3        0004   R  000112  T4        0004   R  000113  T5        0005      000000  V         0007      000074  VISCA
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 0007   000075 VISCB     0004 R 000146 WDRY     0004 R 000147 WH20    0007   000076 WTMA     0006   000035 WTMAX
 0007   000077 WTMB      0000 R 000022 X        0007   000100 XKA     0007   000101 XKB      0003   000103 Y
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00101               SUBROUTINE FTRAY
00103               COMMON /COMP/ DS(15),N,NA1,NB1,NC,NCAB,NCFL,NEXT,NEXV,NK,
00103              1 NKEX,NKS,NKT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),
00103              2 NSTR(18),NSUBR,NV,NVT,Y(12)
00104               COMMON /RARRAY/ IMAXR,R(1)
00105               COMMON /KANDV/ K
00106               COMMON /MISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,
00106              1  LPSUM(5),MAXCI,MAXLP,MAXSLP,MAXSSI,NCOMPS,NEWDT,NLAST,NPASPD,
00106              2  MINSSI,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX
00107               COMMON /SOURCE/  A(19),B(19),CPA,CPB,IA1,IB1,NA,NB,NPFS,NPFST(6),
00107              1 NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,WTMA,WTMB,XKA,XKB
00110               DIMENSION V(1),K(1),Q(6)
00111               EQUIVALENCE (V,K),(TAVG,R(51)),(T1,R(71)),(T2,R(72)),(T3,R(73))
00111              *,(T4,R(74)),(T5,R(75)),(WDRY,R(102)),(WH20,R(103)),(GMAX,R(70))
00112               LOGICAL STEADY,STEDDY
00112         C
00112         C         THIS SUBROUTINE MODELS A SKYLAB-TYPE FOOD HEATING/SERVING
00112         C         TRAY. EACH HEATING CAVITY IS SIMULATED BY FIVE FOOD NODES, WITH
00112         C         MELTING ALLOWED AT EACH NODE, AND THERMAL PROPERTIES
00112         C         DEPENDENT ON THE ICE/WATER BALANCE. TEMPERATURE AND PROPERTY
00112         C         INITIALIZATION ARE AUTOMATICALLY DONE AT START OF EACH
00112         C         HEATING CYCLE.
00112         C
00113               DUM=R(2)
00114               DO 5 L=1,19
00117             5 R(L)=A(L)
00121               R(2)=DUM
00122               R(3)=A(4)
00123             8 IF (NEWDT.EQ.-1) RETURN
00125               R(2)=A(2)
00126               IF (NSTR(17).NE.0) WRITE (6,10) N
00132            10 FORMAT (///'  COMPONENT NO.', I5, '  CHECKOUT OF FTRAY'/)
00133               STEDDY=STEADY
00134               IF (NSTR(16).EQ.1) STEDDY=.TRUE.
00136               R(65)=0.
00136         C
00136         C         INITIALIZE FOOD TRAY DATA
00136         C
00137               IF (NPASS  .EQ. 0) GO TO 15
00141               IF (STEDDY) GO TO 50
00143               IF (R(104).LT.0. .OR. R(105).GT.0.) GO TO 50
00145            15 IF (R(54)  .LT.  .0001) R(54)=70.
00147               IF (R(55)  .LT.  .0001) R(55)=.148
00151               IF (R(57)  .LT.  .0001) R(57)=70.
00153               IF (R(58)  .LT.  .0001) R(58)=.0625
00155               IF (R(60)  .LT.  .0001) R(60)=70.
00157               IF (R(61)  .LT.  .0001) R(61)=.216
00161               IF (STEDDY.AND.R(66).GT..1 .AND. ABS(R(71)).LT.1.E-20) R(71)=140.
00163               IF ((.NOT.STEDDY) .AND. R(104).GT.0. .AND. ABS(R(71)).LT.1.E-20)
00163              *   R(71)=-10.
00165               IF ((.NOT.STEDDY) .AND. R(104).LT.0. .AND. ABS(R(71)).LT.1.E-20)
00165              *   R(71)=70.
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A-12

D2-118571-2

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00167   53*          DUM=R(71)                                                  FTRAY053
00170   54*          DO 20 L=72,75                                              FTRAY054
00173   55*          IF (NSTR(1) .EQ. 0) R(L)=R(71)                             FTRAY055
00175   56*       20 DUM=DUM+R(L)                                               FTRAY056
00177   57*          R(51)=.2*DUM                                               FTRAY057
00200   58*          IF (K(NKS+1) .EQ. 0) K(NKS+1)=1                            FTRAY058
00202   59*          IF (R(67).LT. .01) R(67)=1.875                             FTRAY059
00204   60*          IF (R(68) .LT. .01) R(68)=1.125                            FTRAY060
00206   61*          IF (R(69) .LT. .0001) R(69)=7.9                            FTRAY061
00210   62*          IF (R(82) .LT. .0001) R(82)=.99                            FTRAY062
00212   63*          IF (R(83) .LT. .0001) R(83)=.25                            FTRAY063
00214   64*          R(64)=0.                                                   FTRAY064
00215   65*          JL=0                                                       FTRAY065
00216   66*          JF=0                                                       FTRAY066
00217   67*          DO 25 L=1,5                                                FTRAY067
00222   68*          IF (R(70+L) .GT. 32.00001) JL=JL+1                         FTRAY068
00224   69*       25 IF (R(70+L) .LT. 31.99999) JF=JF+1                         FTRAY069
00227   70*          K(NKS+3)=1                                                 FTRAY070
00230   71*          IF (JF.EQ.5) K(NKS+3)=0                                    FTRAY071
00232   72*          IF (JL.EQ.5) K(NKS+3)=2                                    FTRAY072
00234   73*          COND=R(82)                                                 FTRAY073
00235   74*          IF (JL.EQ.5) COND=R(83)                                    FTRAY074
00237   75*          RAD=R(67)/12.                                              FTRAY075
00240   76*          H=R(68)/12.                                                FTRAY076
00241   77*          ASP=RAD/H                                                  FTRAY077
00242   78*          R(76)=COND*.5656 *3.1416*H/.366                            FTRAY078
00243   79*          R(77)=COND*.5 *3.1416*RAD*RAD/.4/H                         FTRAY079
00244   80*          R(78)=COND*.5*3.1416*RAD/SQRT(.09/ASP/ASP+.0429)           FTRAY080
00245   81*          R(79)=COND*.5*3.1416*RAD/SQRT(.09/ASP/ASP+.0253)           FTRAY081
00246   82*          R(80)=1./(2.5+1.25*ASP)                                    FTRAY082
00247   83*          R(81)=(.4+ASP)/(2.+ASP)                                    FTRAY083
00250   84*          SG1=R(78)+R(79)                                            FTRAY084
00251   85*          SG2=R(78)+R(76)+R(77)                                      FTRAY085
00252   86*          SG5=R(79)+R(76)+R(77)                                      FTRAY086
00253   87*          GMAX=AMAX1(SG1,SG2,SG5)                                    FTRAY087
00254   88*          IF (STEDDY) GO TO 50                                       FTRAY088
00256   89*          IF (R(84) .LT. .001) R(84)=157.                            FTRAY089
00260   90*          IF (R(85) .LT. 1.E-20) R(85)=2.                            FTRAY090
00262   91*          IF (R(86) .LT. .001) R(86)=.78                             FTRAY091
00264   92*          IF (R(88) .LT. .001) R(88)=1.9                             FTRAY092
00266   93*          IF (R(89) .LT. .001) R(89)=.724                            FTRAY093
00270   94*          IF (R(90) .LT. .001 .AND. NSTR(2).EQ.0) R(90)=52.          FTRAY094
00272   95*          IF (R(101) .LT. .001) R(101)=59.                           FTRAY095
00274   96*          IF (ABS(R(104)) .LT. .1) R(104)=1.                         FTRAY096
00276   97*          WH20=.2*3.1416*RAD*RAD*H*R(101)*R(89)                      FTRAY097
00277   98*          WDRY=WH20*(1./R(89)-1.)                                    FTRAY098
00300   99*          R(87)=AMAX1(0., (R(86)*(WH20+WDRY)-WH20)/WDRY)             FTRAY099
00301  100*          DO 30 L=1,5                                                FTRAY100
00304  101*          IF (R(70+L) .GT. 32.00001) R(95+L)=0.                      FTRAY101
00306  102*          IF (R(70+L) .LT. 31.99999) R(95+L)=1.                      FTRAY102
00310  103*       30 R(90+L)=WDRY*R(87)+WH20*(1.-.54*R(95+L))                   FTRAY103
00312  104*          R(91)=R(91)+R(81)*R(88)                                    FTRAY104
00313  105*          R(94)=R(94)+R(80)*R(88)                                    FTRAY105
00314  106*          R(95)=R(95)+R(80)*R(88)                                    FTRAY106
00314  107*    C                                                                FTRAY107
00314  108*    C        COMPUTE Q-FLUX FACTOR (DT/C) FOR NEW TEMP CALCULATIONS  FTRAY108
00314  109*    C                                                                FTRAY109
00315  110*          50 IF (.NOT.STEDDY) GO TO 60                               FTRAY110
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00317   111*          X=.8/GMAX                                                        FTRAY111
00320   112*          LL=25                                                            FTRAY112
00321   113*          GO TO 70                                                         FTRAY113
00322   114*       60 DTH=DTIME/3600.                                                  FTRAY114
00323   115*          LL=IFIX(DTH/AMIN1(DTH,.7*R(93)/GMAX,20./3600.)+.99)              FTRAY115
00324   116*          DTYME=DTH/FLOAT(LL)                                              FTRAY116
00325   117*          X=DTYME/R(93)                                                    FTRAY117
00326   118*       70 LPASS=0                                                          FTRAY118
00327   119*       75 LPASS=LPASS+1                                                    FTRAY119
00330   120*          TAVG=.2*(T1+T2+T3+T4+T5)                                         FTRAY120
00331   121*          CALL OSURR                                                       FTRAY121
00331   122*     C                                                                     FTRAY122
00331   123*     C       SET HEATER POWER                                              FTRAY123
00331   124*     C                                                                     FTRAY124
00332   125*          IF (STEDDY) GO TO 100                                            FTRAY125
00334   126*          IF (R(104).GT.0.) GO TO 77                                       FTRAY126
00336   127*          QHTR=0.                                                          FTRAY127
00337   128*          GO TO 110                                                        FTRAY128
00340   129*       77 IF (NSTR(2) .EQ. 1) GO TO 90                                     FTRAY129
00342   130*          L=K(NKS+1)                                                       FTRAY130
00343   131*          IF (R(70+L) .LT. R(84)-R(85)) GO TO 90                           FTRAY131
00345   132*          IF (R(70+L) .GT. R(84)+R(85)) GO TO 80                           FTRAY132
00347   133*          IF (K(NKS+2) .EQ. 1) GO TO 90                                    FTRAY133
00351   134*       80 QHTR=0.                                                          FTRAY134
00352   135*          K(NKS+2)=0                                                       FTRAY135
00353   136*          GO TO 110                                                        FTRAY136
00354   137*       90 QHTR=R(90)*3.412                                                 FTRAY137
00355   138*          K(NKS+2)=1                                                       FTRAY138
00356   139*          GO TO 110                                                        FTRAY139
00357   140*      100 QHTR=R(69)*3.412                                                 FTRAY140
00360   141*      110 R(65)=R(65)+QHTR                                                 FTRAY141
00361   142*          QHTR=QHTR-R(62)                                                  FTRAY142
00361   143*     C                                                                     FTRAY143
00361   144*     C       COMPUTE HEAT FLOW INTO EACH NODE                              FTRAY144
00361   145*     C                                                                     FTRAY145
00362   146*          Q34=R(76)*(T3-T4)                                                FTRAY146
00363   147*          Q25=R(76)*(T2-T5)                                                FTRAY147
00364   148*          Q23=R(77)*(T2-T3)                                                FTRAY148
00365   149*          Q45=R(77)*(T4-T5)                                                FTRAY149
00366   150*          Q12=R(78)*(T1-T2)                                                FTRAY150
00367   151*          Q15=R(79)*(T1-T5)                                                FTRAY151
00370   152*          QW4=QHTR*R(80)                                                   FTRAY152
00371   153*          QA3=-.5*(R(56)+R(59))                                            FTRAY153
00372   154*          Q(1)=QHTR*R(81)-Q12-Q15                                          FTRAY154
00373   155*          Q(2)=Q12-Q25-Q23                                                 FTRAY155
00374   156*          Q(3)=QA3+Q23-Q34                                                 FTRAY156
00375   157*          Q(4)=QW4+Q34-Q45+QA3                                             FTRAY157
00376   158*          Q(5)=Q15+QW4+Q25+Q45                                             FTRAY158
00376   159*     C                                                                     FTRAY159
00376   160*     C       COMPUTE NEW TEMPERATURES - ALLOW FOR MELTING                  FTRAY160
00376   161*     C                                                                     FTRAY161
00377   162*          DELTA=0.                                                         FTRAY162
00400   163*          JL=0                                                             FTRAY163
00401   164*          JF=0                                                             FTRAY164
00402   165*          DO 200 L=1,5                                                     FTRAY165
00405   166*          DT=Q(L)*X                                                        FTRAY166
00406   167*          IF (K(NKS+3).EQ.2) GO TO 190                                     FTRAY167
00410   168*          IF (R(70+L) .GT. 32.0001) GO TO 150                              FTRAY168
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00412          IF (.NOT.STEDDY) GO TO 120
00414          IF ( R(70+L) .LT. 31.99999) JF=JF+1
00416          GO TO 190
00417      120 DT=Q(L)*DTYME/R(90+L)
00420          IF (R(70+L)+DT .LT. 31.99999) GO TO 140
00422          QMELT=WH2O*R(95+L)*144.
00423          IF (Q(L)*DTYME .GE. QMELT) GO TO 130
00425          DT=32.0-R(70+L)
00426          R(70+L)=32.0
00427          R(95+L)=R(95+L)-Q(L)*DTYME/144./WH2O
00430          R(90+L)=WDRY*R(87)+WH2O*(1.-.54*R(95+L))
00431          IF (L.EQ.1) R(91)=R(91)+R(81)*R(88)
00433          IF (L.EQ.4) R(94)=R(94)+R(80)*R(88)
00435          IF (L.EQ.5) R(95)=R(95)+R(80)*R(88)
00437          GO TO 200
00440      130 DT=(Q(L)*DTYME-QMELT)/R(90+L)
00441          R(95+L)=0.
00442          JL=JL+1
00443          R(90+L)=WDRY*R(87)+WH2O
00444          IF (L.EQ.1) R(91)=R(91)+R(81)*R(88)
00446          IF (L.EQ.4) R(94)=R(94)+R(80)*R(88)
00450          IF (L.EQ.5) R(95)=R(95)+R(80)*R(88)
00452          GO TO 190
00453      140 JF=JF+1
00454          GO TO 190
00455      150 JL=JL+1
00456      190 R(70+L)=R(70+L)+DT
00457      200 IF (ABS(DT) .GT. DELTA) DELTA=ABS(DT)
00462          R(51)=.2*( R(71)+R(72)+R(73)+R(74)+R(75) )
00462    C        ADJUST CONDUCTORS FOR NEW ICE/WATER BALANCE
00463          IF (K(NKS+3) .EQ. 2) GO TO 240
00465          K(NKS+3)=1
00466          IF (JF .EQ. 5) K(NKS+3)=0
00470          IF (JL .LT. 5) GO TO 240
00472          K(NKS+3)=2
00473          DO 220 L=1,4
00476      220 R(75+L)=R(75+L)*R(83)/R(82)
00500          GMAX=GMAX*R(83)/R(82)
00500    C        CHECK FOR RE-ITERATION IF REQUIRED
00501      240 IF (STEDDY) GO TO 270
00503          IF (LPASS.LT. LL) GO TO 75
00505          GO TO 300
00506      270 IF (LPASS.LT.LL .AND.     DELTA .GT..05) GO TO 75
00510      300 R(53)=R(53)*R(66)
00511          R(56)=R(56)*R(66)
00512          R(59)=R(59)*R(66)
00513          R(62)=R(62)*R(66)
00514          R(65)=R(65)/FLOAT(LPASS)*R(66)
00515          IF (A(1) .GT. 1.E-7) R(2)=A(2)+R(56)/A(1)/CPA
00517          IF (.NOT.STEDDY) R(105)=R(104)
00521          IF (NSTR(17) .EQ. 0) RETURN
00523          WRITE (6,310) LPASS,LL,JF,JL,TAVG,QHTR,QMELT,DTYME,
00523         * (L,Q(L), L=1,5), X,SG1,SG2,SG5
00546      310 FORMAT (/'  LPASS=',I4, '  LL=',I7, '  JF=',I3,'  JL=',I3,
00546         *'  TAVG=',G12.5,'  QHTR=',G12.5,'  QMELT=',G12.5,'  DTYME=',G12.5/
00546         * 5('  Q(', I1, ')=', G12.5), '  X=',G12.5/ '  SG1=',G12.5,
00546         * '  SG2=',G12.5, '  SG5=',G12.5/)
00547          RETURN
00550          END

END OF COMPILATION:       NO  DIAGNOSTICS.
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@ FOR ROSMOS,ROSMOS                                                    25 AUG 75
UNIVAC 1108 FORTRAN V EXEC II LEVEL 25A  -(EXEC8 LEVEL E12010010A)
THIS COMPILATION WAS DONE ON 25 AUG 75 AT 18:40:58

   SUBROUTINE ROSMOS    ENTRY POINT 000517

   STORAGE USED: CODE(1) 000532; DATA(0) 000063; BLANK COMMON(2) 000000

    COMMON BLOCKS:

    0003    COMP    000117
    0004    RARRAY  000115
    0005    KANDV   000001
    0006    MISC    000036
    0007    PROPTY  001002
    0010    SOURCE  000102

   EXTERNAL REFERENCES (BLOCK, NAME)

    0011    QSURR
    0012    NERR35

   STORAGE ASSIGNMENT  (BLOCK, TYPE, RELATIVE LOCATION, NAME)

    0001    000361 100L      0001    000417 110L      0001    000420 120L      0001    000463 150L      0001    000470 160L
    0001    000216 166G      0001    000161 20L       0001    000473 200L      0001    000301 202G      0001    000475 220L
    0001    000321 80L       0010  R 000000 A         0010    000023 B         0007    000001 CP        0010  R 000046 CPA
    0010    000047 CPB       0007    000144 CPCONL    0007    000145 CPCONV    0007    000146 CPCO2     0007    000147 CPDIL
    0007    000150 CPOXY     0000  R 000003 CPRD      0007    000151 CPTC      0007    000000 CPU       0003    000000 DS
    0000  R 000006 DTH       0004  R 000000 DTIME     0000  R 000007 DTYME     0007    000152 GAMGAS    0006    000001 GRAV
    0010    000000 IAI       0010    000001 IBI       0004    000000 IMAXR     0000    000042 INJPS     0000  I 000004 J
    0005  I 000000 K         0006    000002 KFLSYS    0006    000003 KOUTPT    0006    000004 KPDROP    0006    000005 KSYPAS
    0006    000006 KTRANS    0000  I 000002 L         0006  I 000010 LL        0000  I 000011 LPASS     0006    000007 LPSUM
    0006    000014 MAXCI     0006    000015 MAXLP     0006    000016 MAXSLP    0006    000017 MAXSSI    0006    000024 MINSST
    0003    000017 N         0010    000052 NA        0003    000020 NAI       0010    000053 NB        0003    000021 NBI
    0003    000022 NC        0003    000023 NCAB      0003    000024 NCFL      0006    000020 NCOMPS    0006  I 000021 NEWDT
    0003    000025 NEXT      0003    000026 NEXV      0003    000027 NK        0003    000030 NKEX      0003  I 000031 NKS
    0003    000032 NKT       0006    000022 NLAST     0003    000033 NLFL      0003    000034 NP        0006    000023 NPASPD
    0003  I 000035 NPASS     0003    000036 NPF       0010    000054 NPFS      0010    000055 NPFST     0003    000037 NPFT
    0003    000045 NQ        0003    000046 NS        0003    000047 NSF       0010    000063 NSFS      0010    000064 NSFST
    0003    000050 NSFT      0003  I 000056 NSTR      0003    000100 NSUBR     0003    000101 NV        0003    000102 NVT
    0006    000025 PGMIN     0006    000026 PLMIN     0000  R 000000 POSM      0004  R 000001 R         0007    000154 RHO
    0010    000072 RHOA      0010    000073 RHOB      0007    000153 RHOO      0004  R 000114 RT        0000  R 000012 RSI
    0006    000027 START     0004  L 000030 STEADY    0006    000031 TIME      0006    000032 TIMEMX    0006    000033 TMAX
    0006    000034 TMIN      0005    000000 V         0007    000320 VISC      0010    000074 VISCA     0010    000075 VISCB
    0007    000317 VISCO     0007    000463 VISGAS    0007    001001 VISLIQ    0000  R 000001 WPRD      0007    000465 WTM
    0010    000076 WTMA      0006    000035 WTMAX     0010    000077 WTMB      0007    000630 WTMCON    0007    000631 WTMDIL
    0007    000632 WTMTC     0007    000464 WTMO      0000  R 000005 X         0007    000634 XK        0010    000100 XKA
    0010    000101 XKB       0007    000777 XKGAS     0007    001000 XKLIQ     0007    000633 XKO       0003    000103 Y
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      SUBROUTINE ROSMOS
      COMMON /COMP/ DS(15),N,NA1,NB1,NC,NCAB,NCFL,NEXT,NEXV,NK,
     1 NKEX,NKS,NKT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),
     2 NSTR(18),NSUBR,NV,NVT,Y(12)
      COMMON /RARRAY/  IMAXR,R(1)
      COMMON /KANDV/ K
      COMMON /MISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,
     1  LPSUM(5),MAXCI,MAXLP,MAXSLP,MAXSSI,NCOMPS,NEWDT,NLAST,NPASPD,
     2  MINSSI,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX
      COMMON /PROPTY/ CPO,CP(99),CPCONL,CPCONV,CPCO2,CPOIL,CPOXY,CPTC,
     1  GAMGAS,RHOO,RHO(99),VISCO,VISC(99),VISGAS,WTMO,WTM(99),WTMCON,
     2  WTMOIL,WTMTC,XKO,XK(99),XKGAS,XKLIQ,VISLIQ
      COMMON /SOURCE/  A(19),B(19),CPA,CPB,IA1,IB1,NA,NB,NPFS,NPFST(6),
     1 NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,WTMA,WTMB,XKA,XKB
      DIMENSION V(1),K(1),RT(1)
      EQUIVALENCE (V,K), (R(76),RT(1))
      LOGICAL STEADY
C
C        INITIALIZE ROSMOS DATA
C
      IF (NPASS .GT. 0) GO TO 20
      IF (R(51) .LT. .0001) R(51)=75.
      IF (R(54) .LT. .0001) R(54)=70.
      IF (R(57) .LT. .0001) R(57)=70.
      IF (R(60) .LT. .0001) R(60)=70.
      IF (R(63) .LT. .0001) R(63)=70.
      IF (R(65) .LT. .0001) R(65)=.96
      IF (R(66) .LT. .0001) R(66)=.93
      IF (R(67) .LT. .0001) R(67)=50.
      IF (R(70) .LT. .0001) R(70)=9.
      IF (R(71) .LT. .0001) R(71)=.01
      IF (R(72) .LT. .0001) R(72)=.008
      IF (R(73) .LT. .0001) R(73)=900.
      IF (R(74) .LT. .0001) R(74)=45.
      IF (R(75) .LT. .0001) R(75)=200.
      IF ((.NOT.STEADY) .AND. R(76).LT. .0001) R(76)=2.5
   20 CONTINUE
C
C        WATER FLOW BALANCE
C
      POSM=R(75)*R(72)/R(71)
      WPRD=R(70)*R(65)
      R(20)=WPRD*(A(4)-R(74)-POSM)/(R(73)-R(67)-R(75))
      R(1)=A(1)-R(20)
      R(3)=A(4)
      R(4)=A(4)
      R(22)=R(74)
      R(23)=R(74)
      DO 50 L=15,19
      R(L)=A(L)*R(1)/A(1)
   50 R(L+19)=A(L)*R(20)/A(1)
C
C        SALT CONCENTRATION BALANCE
C
   60 CPRD=(1.-R(66)) *R(71) / R(65)
      R(69)=CPRD*R(72)/R(71)
      R(68)=(R(72)*A(1)-R(69)*R(20))/R(1)
      J=K(NKS+1)
      IF (J.LE.0) GO TO 80
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00201    60*          DO 70 L=1,J                                                    ROSM0060
00204    61*          CPRD=(1.-RT(I+2*J+L))*RT(I+L) / R(65)                          ROSM0061
00205    62*          RT(I+3*J+L)=CPRD*RT(I+J+L)/RT(I+L)                             ROSM0062
00206    63*       70 RT(I+4*J+L)=(RT(I+J+L)*A(1)-RT(I+3*J+L)*R(20)) / R(1)          ROSM0063
00210    64*       80 IF (NEWDT.EQ.-1) RETURN                                        ROSM0064
00210    65*     C                                                                   ROSM0065
00210    66*     C        THERMAL BALANCE                                            ROSM0066
00210    67*     C                                                                   ROSM0067
00212    68*          R(2)=A(2)                                                      ROSM0068
00213    69*          IF (R(55)+R(58)+R(61)+R(64) .LT. 1.E-6) GO TO 220              ROSM0069
00215    70*          CALL QSURR                                                     ROSM0070
00216    71*          IF ((.NOT.STEADY) .AND. NSTR(16).EQ. 0) GO TO 100              ROSM0071
00220    72*          X=.5/(R(52)+A(1)*CPA)                                          ROSM0072
00221    73*          GO TO 110                                                      ROSM0073
00222    74*      100 DTH=DTIME/3600.                                                ROSM0074
00223    75*          DTYME=R(76)*.5/ (R(52)+A(1)*CPA)                               ROSM0075
00224    76*          LL=IFIX(DTH/AMIN1(DTH,DTYME)+.99)                              ROSM0076
00225    77*          DTYME=DTH/FLOAT(LL)                                            ROSM0077
00226    78*          X=DTYME/R(76)                                                  ROSM0078
00227    79*      110 LPASS=0                                                        ROSM0079
00230    80*      120 LPASS=LPASS+1                                                  ROSM0080
00231    81*          R51=R(51)                                                      ROSM0081
00232    82*          R(51)=R51+(A(1)*CPA*(A(2)-R51)-R(53))*X                        ROSM0082
00233    83*          IF ((.NOT.STEADY) .AND. NSTR(16).EQ.0) GO TO 150               ROSM0083
00235    84*          IF (ABS(R51-R(51)).GT..05 .AND. LPASS.LT.25) GO TO 160         ROSM0084
00237    85*          GO TO 200                                                      ROSM0085
00240    86*      150 IF (LPASS.GE.LL) GO TO 200                                     ROSM0086
00242    87*      160 CALL QSURR                                                     ROSM0087
00243    88*          GO TO 120                                                      ROSM0088
00244    89*      200 R(2)=R(51)                                                     ROSM0089
00245    90*      220 R(21)=R(2)                                                     ROSM0090
00246    91*          RETURN                                                         ROSM0091
00247    92*          END                                                            ROSM0092

        END OF COMPILATION:       NO  DIAGNOSTICS.
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@ FOR,° SHONER,SHONER 23 SEP 75 4:27:

UNIVAC 1108 FORTRAN V EXEC II LEVEL 25A -(EXEC8 LEVEL E12D0010A)
THIS COMPILATION WAS DONE ON 23 SEP 75 AT 04:27:51

SUBROUTINE SHONER ENTRY POINT 002213

STORAGE USED: CODE(1) 002222; DATA(0) 000424; BLANK COMMON(2) 000000.

COMMON BLOCKS:

0003	COMP	000117
0004	RARRAY	000120
0005	KANDV	000001
0006	MISC	000036
0007	PROPTY	001002
0010	SOURCE	000102

EXTERNAL REFERENCES (BLOCK, NAME)

0011	QSURR
0012	PSAT
0013	HG
0014	HF
0015	HBALNC
0016	PROP
0017	TSAT
0020	NADUS
0021	N102S
0022	EXP
0023	NEXP6S
0024	NERR3S

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0001		001113	110L	0001		001140	133L	0001		001214	134L	0001		001203	135L	0001		001301	150L
0001		001507	160L	0001		001573	180L	0001		000277	20L	0001		000333	223G	0001		001636	230L
0000		000070	25F	0001		001650	260L	0001		001670	305L	0001		001714	310L	0001		002030	315L
0001		000440	32L	0001		001722	320L	0001		002035	325L	0001		002102	326L	0001		002120	327L
0001		000446	33L	0000		000227	330F	0000		000265	335F	0000		000101	340F	0000		000147	345F
0000		002205	355F	0001		000515	48L	0001		000554	50L	0001		000617	70L	0001		000642	80L
0001		000702	90L	0001		000710	92L	0001		000777	94L	0001		001056	96L	0010	R	000000	A
0010	R	000023	B	0007		000001	CP	0010	R	000046	CPA	0000	R	000020	CPAA	0010	R	000047	CPB
0007		000144	CPCONL	0007		000145	CPCONV	0007		000146	CPCO2	0007		000147	CPDIL	0007		000150	CPOXY
0007		000151	CPTC	0007		000000	CPU	0000	R	000042	CSKIN	0000	R	000043	CWALL	0000	R	000050	DIFF
0003		000000	DS	0000	R	000006	DTH	0006	R	000000	DTIME	0000	R	000044	DTYME	0000	R	000037	DUM
0000	R	000010	DUM2	0000	R	000056	EVAP	0000	R	000055	EVAPSK	0000	R	000054	EVAPW	0000	R	000031	FIRST
0007		000152	GAMGAS	0000	R	000011	GRAD	0006		000001	GRAV	0000	R	000036	GSK	0000	R	000027	GSKIN
0000	R	000012	GW	0000	R	000030	GWALL	0004	R	000117	HC	0000	R	000053	HD	0014	R	000000	HF
0013	R	000000	HG	0000	R	000024	HMIX	0000	R	000066	HS1	0000	R	000065	H77	0010		000050	IA1
0010		000051	IB1	0004		000000	IMAXR	0000		000405	INJPS	0005	I	000000	K	0006		000002	KFLSYS
0006		000003	KOUTPT	0000	I	000062	KPASS	0006		000004	KPDROP	0006		000005	KSYPAS	0006		000006	KTRANS
0000	I	000005	L	0000	I	000013	LPASS	0006		000007	LPSUM	0006		000014	MAXCI	0006		000015	MAXLP
0006		000016	MAXSLP	0006		000017	MAXSSI	0006		000024	MINSSI	0003	I	000017	N	0010		000052	NA

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0003     000020 NAI     0010     000053 NB      0003     000021 NBI     0003     000022 NC      0003     000023 NCAB
0003 I   000024 NCFL    0006     000020 NCOMPS  0006     000021 NEWDT   0003     000025 NEXT    0003     000026 NEXV
0003     000027 NK      0003     000030 NKEX    0003 I   000031 NKS     0003     000032 NKT     0006     000022 NLAST
0003     000033 NLFL    0003     000034 NP      0006     000023 NPASPD  0003 I   000035 NPASS   0003 I   000036 NPF
0010     000054 NPFS    0010     000055 NPFST   0003 I   000037 NPFT    0003     000045 NQ      0003     000046 NS
0003     000047 NSF     0010     000063 NSFS    0010     000064 NSFST   0003     000050 NSFT    0003 I   000056 NSTP
0003     000100 NSUBR   0000 I   000041 NTYME   0003     000101 NV      0003     000102 NVT     0006     000025 PGMIN
0006     000026 PLMIN   0000 R   000052 PR      0012 R   000000 PSAT    0000 R   000057 PVAP    0000 R   000032 PWIN
0000 R   000047 PWINF   0000 R   000045 PWOUT   0000 R   000060 QSKIN   0000 R   000061 QWALL   0004 R   000001 R
0007     000154 RHO     0010 R   000072 RHOA    0000 R   000021 RHOAA   0010     000073 RHOB    0007     000153 RHOD
0000 R   000003 RR6     0000 R   000004 RR7     0000 R   000033 R1      0000 R   000014 R10     0000 R   000015 R12
0000 R   000034 R2      0000 R   000063 R51     0000 R   000035 R6      0000 R   000064 R77     0000 R   000051 SC
0006     000027 START   0006 L   000030 STEADY  0000 L   000000 STEDDY  0006     000031 TIME    0006     000032 TIMEMX
0006     000033 TMAX    0006     000034 TMIN    0017 R   000000 TSAT    0000 R   000031 TWIN    0000 R   000046 TWINF
0000 R   000002 TWOUT   0005     000000 V       0007     000320 VISC    0010 R   000074 VISCA   0000 R   000022 VISCAA
0010     000075 VISCB   0007     000317 VISCD   0007     000463 VISGAS  0007     001001 VISLIQ  0000 R   000016 WCO2
0000 R   000025 WLCOND  0000 R   000017 WOXY    0000 R   000067 WSAT    0007     000465 WTM     0010     000076 WTMA
0000 R   000026 WTMAA   0006     000035 WTMAX   0010     000077 WTMB    0007 R   000630 WTMCON  0007     000631 WTMOIL
0007     000632 WTMTC   0007     000464 WTMD    0007     000634 XK      0010 R   000100 XKA     0000 R   000023 XKAA
0010     000101 XKB     0007     000777 XKGAS   0007     001000 XKLIQ   0007     000633 XKD     0000 R   000037 X51
0000 R   000040 X77     0003     000103 Y
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00101           SUBROUTINE SHOWER                                                  SHOWR001
00101     C                                                                        SHOWR002
00101     C        THIS ROUTINE MODELS A WHOLE-BODY SHOWER                         SHOWR003
00101     C                                                                        SHOWR004
00103           COMMON /COMP/ DS(15),N,NAI,NBI,NC,NCAB,NCFL,NEXT,NEXV,NK,          SHOWR005
00103          1 NKEX,NKS,NKT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),          SHOWR006
00103          2 NSTR(18),NSUBR,NV,NVT,Y(12)                                        SHOWR007
00104           COMMON /RARRAY/  IMAXR,R(1)                                        SHOWR008
00105           COMMON /KANDV/ K                                                   SHOWR009
00106           COMMON /MISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,      SHOWR010
00106          1  LPSUM(5),MAXCI,MAXLP,MAXSLP,MAXSSI,NCOMPS,NEWDT,NLAST,NPASPD,     SHOWR011
00106          2  MINSSI,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX      SHOWR012
00107           COMMON /PROPTY/ CPD,CP(99),CPCONL,CPCONV,CPCO2,CPOIL,CPOXY,CPTC,   SHOWR013
00107          1  GAMGAS,RHOD,RHO(99),VISCD,VISC(99),VISGAS,WTMD,WTM(99),WTMCON,    SHOWR014
00107          2  WTMOIL,WTMTC,XKD,XK(99),XKGAS,XKLIQ,VISLIQ                       SHOWR015
00110           COMMON /SOURCE/  A(19),B(19),CPA,CPB,IAI,IBI,NA,NB,NPFS,NPFST(6),  SHOWR016
00110          1 NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,WTMA,WTMB,XKA,XKB             SHOWR017
00111           DIMENSION V(1),K(1)                                                SHOWR018
00112           EQUIVALENCE (V,K), (R(79),HC)                                      SHOWR019
00113           LOGICAL STEADY,STEDDY,FIRST                                        SHOWR020
00114           STEDDY=STEADY                                                      SHOWR021
00115           IF (NSTR(16) .EQ. 1) STEDDY=.TRUE.                                 SHOWR022
00115     C                                                                        SHOWR023
00115     C        INITIALIZE SHOWER DATA                                          SHOWR024
00115     C                                                                        SHOWR025
00117           IF (NPASS .GT.0) GO TO 20                                          SHOWR026
00121           K(NKS+1)=-1                                                        SHOWR027
00122           IF (R(51)  .LT.  .0001)  R(51)=70.                                 SHOWR028
00124           IF (R(54)  .LT.  .0001)  R(54)=70.                                 SHOWR029
00126           IF (R(55)  .LT.  .0001)  R(55)=14.                                 SHOWR030
00130           IF (R(57)  .LT.  .0001)  R(57)=70.                                 SHOWR031
00132           IF (R(58)  .LT.  .0001)  R(58)=14.                                 SHOWR032
00134           IF (R(60)  .LT.  .0001)  R(60)=70.                                 SHOWR033
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00136    34*          IF (R(61) .LT. .0001) R(61)=30.                                    SHOWR034
00140    35*          IF (R(63) .LT. .0001) R(63)=70.                                    SHOWR035
00142    36*          IF (R(66) .LT. .1) R(66)=550.                                      SHOWR036
00144    37*          IF (R(68) .LT. .01) R(68)=.9                                       SHOWR037
00146    38*          IF (R(69) .LT. .1) R(69)=39.0                                      SHOWR038
00150    39*          IF (R(71) .LT. 1.E-20) R(71)=13.0                                  SHOWR039
00152    40*          IF (R(74) .LT. .0001) R(74)=4.5                                    SHOWR040
00154    41*          IF ( R(75).LT. 1.E-4) R(75)=1.0                                    SHOWR041
00156    42*          IF (R(76) .LT. .0001) R(76)=24.                                    SHOWR042
00160    43*          R(77)=90.                                                          SHOWR043
00161    44*          IF (R(78) .LT. .01) R(78)=.85*19.5                                 SHOWR044
00163    45*          IF (R(79) .LT. .0001) R(79)=.8                                     SHOWR045
00165    46*          IF (R(80) .LT. .0001) R(80)=1.0                                    SHOWR046
00167    47*          IF (R(81) .LT. .01) R(81)=46.0                                     SHOWR047
00171    48*          IF (R(82) .LT. .0001) R(82)=1.0                                    SHOWR048
00173    49*          IF (STEADY) GO TO 20                                               SHOWR049
00175    50*          IF (R(84) .LT. .0001) R(84)=10.                                    SHOWR050
00177    51*          IF (R(85) .LT. .1) R(85)=170.                                      SHOWR051
00201    52*          IF (R(86) .LT. .0001) R(86)=10.                                    SHOWR052
00203    53*          IF (R(87) .LT. .0001) R(87)=80.                                    SHOWR053
00205    54*          R(77)=R(87)                                                        SHOWR054
00206    55*       20 CONTINUE                                                           SHOWR055
00207    56*          IF (NSTR(17).NE.0) WRITE (6,25) N                                  SHOWR056
00213    57*       25 FORMAT (///'  COMPONENT NO.', I5, '  CHECKOUT OF SHOWER'/)         SHOWR057
00214    58*          TWOUT=R(2)                                                         SHOWR058
00215    59*          IF (K(NKS+1).LT.0) TWOUT=.5*(R(77)+R(51))                          SHOWR059
00217    60*          RR6=R(6)                                                           SHOWR060
00220    61*          RR7=R(7)                                                           SHOWR061
00221    62*          R(83)=0.                                                           SHOWR062
00222    63*          DO 30 L=1,19                                                       SHOWR063
00225    64*       30 R(L)=A(L)                                                          SHOWR064
00227    65*          R(3)=A(4)                                                          SHOWR065
00230    66*          DTH=DTIME/3600.                                                    SHOWR066
00231    67*          IF (A(1) .GT. 1.E-5) GO TO 33                                      SHOWR067
00231    68*    C                                                                        SHOWR068
00231    69*    C        NO AIR FLOW  -  ASSUME SHOWER NOT IN USE                        SHOWR069
00231    70*    C                                                                        SHOWR070
00233    71*          K(NKS+1)=-1                                                        SHOWR071
00234    72*          R(67)=0.                                                           SHOWR072
00235    73*          R(70)=0.                                                           SHOWR073
00236    74*          IF (.NOT.STEADY) R(77)=R(87)                                       SHOWR074
00240    75*          CALL QSURR                                                         SHOWR075
00241    76*          DUM=R(51)+460.                                                     SHOWR076
00242    77*          DUM2=R(57)+460.                                                    SHOWR077
00243    78*          GRAD=.1714E-8*R(58)*(DUM*DUM+DUM2*DUM2)*(DUM+DUM2)                 SHOWR078
00244    79*          GW=R(55)+GRAD+R(61)                                                SHOWR079
00245    80*          DUM=(R(54)*R(55)+R(57)*GRAD+R(60)*R(61)) /GW                       SHOWR080
00246    81*          IF (STEADY) GO TO 32                                               SHOWR081
00250    82*          R(51)=DUM+(R(51)-DUM)*EXP(-GW/R(84)*DTH)                           SHOWR082
00251    83*          RETURN                                                             SHOWR083
00252    84*       32 R(51)=DUM                                                          SHOWR084
00253    85*          RETURN                                                             SHOWR085
00254    86*       33 LPASS=0                                                            SHOWR086
00254    87*    C                                                                        SHOWR087
00254    88*    C        METABOLIC CO2 AND O2 GENERATION/USAGE RATES                     SHOWR088
00254    89*    C                                                                        SHOWR089
00255    90*          IF (NPF.LT.2) GO TO 92                                             SHOWR090
00257    91*          R10=R(10)                                                          SHOWR091
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00260    92*          R12=R(12)                                                    SHOWR092
00261    93*          IF (STEDDY .OR. KINKS+1).GE.0) GO TO 48                      SHOWR093
00263    94*          R(72)=R(12)*RHOA*35.11*(R(2)+460.)/(R(5)+R(6))/2.785         SHOWR094
00264    95*          R(73)=R(10)*RHOA*48.29*(R(2)+460.)/(R(5)+R(6))/144.          SHOWR095
00265    96*       48 CONTINUE                                                     SHOWR096
00266    97*          R(70)=R(66)*.001*(.1708-(R(68)-.707)*.0420)                  SHOWR097
00267    98*          R(67)=R(68)*44./32.*R(70)                                    SHOWR098
00267    99*    C                                                                 SHOWR099
00267   100*    C        CO2 BALANCE IN SHOWER STALL                              SHOWR100
00267   101*    C                                                                 SHOWR101
00270   102*          IF (.NOT.STEDDY) GO TO 50                                    SHOWR102
00272   103*          R(12)=R(12)+R(67)                                            SHOWR103
00273   104*          WCO2=R(12)/(R(5)+R(6))*R(69)*RHOA                            SHOWR104
00274   105*          R(72)=WCO2*35.11*(460.+R(2))/R(69)/2.785                     SHOWR105
00275   106*          GO TO 70                                                     SHOWR106
00276   107*       50 WCO2=R(72)*2.785*R(69)/35.11/(460.+R(2))                     SHOWR107
00277   108*          DUM=(R(5)+R(6))/R(69)/RHOA                                   SHOWR108
00300   109*          DUM2=(R(12)+R(67))/DUM                                       SHOWR109
00301   110*          WCO2=DUM2+(WCO2-DUM2)*EXP(-DUM*DTH)                          SHOWR110
00302   111*          R(72)=WCO2*35.11*(460.+R(2))/R(69)/2.785                     SHOWR111
00303   112*          R(12)=WCO2*DUM                                               SHOWR112
00303   113*    C                                                                 SHOWR113
00303   114*    C        OXYGEN BALANCE IN SHOWER STALL                           SHOWR114
00303   115*    C                                                                 SHOWR115
00304   116*       70 IF (.NOT.STEDDY) GO TO 80                                    SHOWR116
00306   117*          R(10)=R(10)-R(70)                                            SHOWR117
00307   118*          WOXY=R(10)/(R(5)+R(6))*R(69)*RHOA                            SHOWR118
00310   119*          R(73)=WOXY*48.29*(460.+R(2))/R(69)/144.                      SHOWR119
00311   120*          GO TO 90                                                     SHOWR120
00312   121*       80 WOXY=R(73)*144.*R(69)/48.29/(460.+R(2))                      SHOWR121
00313   122*          DUM2=(R(10)-R(70))/DUM                                       SHOWR122
00314   123*          WOXY=DUM2+(WOXY-DUM2)*EXP(-DUM*DTH)                          SHOWR123
00315   124*          R(73)=WOXY*48.29*(460.+R(2))/R(69)/144.                      SHOWR124
00316   125*          R(10)=WOXY*DUM                                               SHOWR125
00317   126*       90 R(5)=R(5) +R(12)-R12 +R(10)-R10                              SHOWR126
00317   127*    C                                                                 SHOWR127
00317   128*    C                                                                 SHOWR128
00320   129*       92 CPAA=CPA                                                     SHOWR129
00321   130*          RHOAA=RHOA                                                   SHOWR130
00322   131*          VISCAA=VISCA                                                 SHOWR131
00323   132*          XKAA=XKA                                                     SHOWR132
00324   133*          FIRST=.FALSE.                                                SHOWR133
00325   134*          L=K(NKS+1)                                                   SHOWR134
00326   135*          IF ((B(1).LT.1.E-6 .AND. L.NE.1) .OR. (B(1).GT.1.E-6.AND.L.NE.0))SHOWR135
00326   136*         *  FIRST=.TRUE.                                              SHOWR136
00330   137*          IF (.NOT.FIRST) GO TO 94                                     SHOWR137
00332   138*          RR6=R(5)*PSAT(TWOUT)*.99/R(4)*WTMCON/R(9)                    SHOWR138
00333   139*          RR7=A(7)+B(1)-RR6*A(6)                                       SHOWR139
00333   140*    C           MIX AIR AND WATER                                      SHOWR140
00334   141*       94 CONTINUE                                                     SHOWR141
00335   142*          R(1)=A(1)+B(1)                                               SHOWR142
00336   143*          R(2)=A(2)                                                    SHOWR143
00337   144*          R(6)=A(6)                                                    SHOWR144
00340   145*          R(7)=A(7)+B(1)                                               SHOWR145
00341   146*          IF (R(7).LT. 1.E-6) GO TO 96                                 SHOWR146
00343   147*          HMIX=R(5)*R(8)*TWOUT +RR6*HG(TWOUT) +RR7*HF(TWOUT)          SHOWR147
00344   148*          CALL HBALNC(HMIX,R,NSTR,NCFL,WLCOND)                         SHOWR148
00345   149*          CALL PROP(R(1), NPF,NPFT(1),CPA,WTMAA,RHOA,VISCAA,XKAA)      SHOWR149
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00346   150*        96 IF (LPASS.GT.0) GO TO 133                                    SHOWR150
00346   151*     C     FLUID CONDUCTANCE TO, AND EVAPORATION FROM, OCCUPANT AND WALLS SHOWR151
00346   152*     C                                                                  SHOWR152
00350   153*       100 IF (B(1) .LT. 1.E-6) GO TO 110                               SHOWR153
00350   154*     C     COMBINED AIR/WATER FLOW                                      SHOWR154
00352   155*         GSKIN=.5*R(1)*CPA                                              SHOWR155
00353   156*         GWALL=GSKIN                                                    SHOWR156
00354   157*         TWIN=(A(1)*A(2)*CPAA+B(1)*B(2)*CPB) /(A(1)*CPAA +B(1)*CPB)     SHOWR157
00355   158*         GO TO 133                                                      SHOWR158
00355   159*     C     AIR FLOW ONLY  -  CONVECTION COEFFICIENTS                    SHOWR159
00356   160*       110 GSKIN=HC*R(78)                                               SHOWR160
00357   161*         GWALL=HC*R(81)                                                 SHOWR161
00360   162*         TWIN=R(2)                                                      SHOWR162
00361   163*         PWIN=R(4)/(1.+R(5)/R(6)*WTMCON/R(9))                           SHOWR163
00362   164*         R1=R(1)                                                        SHOWR164
00363   165*         R2=R(2)                                                        SHOWR165
00364   166*         R6=R(6)                                                        SHOWR166
00364   167*     C                                                                  SHOWR167
00364   168*     C     GET COMPUTING TIME INCREMENT AND NUMBER OF PASSES            SHOWR168
00364   169*     C                                                                  SHOWR169
00365   170*       133 CALL GSURR                                                   SHOWR170
00366   171*         DUM=R(51)+460.                                                 SHOWR171
00367   172*         DUM2=R(77)+460.                                                SHOWR172
00370   173*         GRAD=.1714E-8*R(71)*(DUM*DUM+DUM2*DUM2)*(DUM+DUM2)             SHOWR173
00371   174*         GW=R(52)+R(74)+GRAD+GWALL                                      SHOWR174
00372   175*         GSK=R(74)+GRAD+GSKIN                                           SHOWR175
00373   176*         IF (.NOT.STEDDY) GO TO 135                                     SHOWR176
00375   177*         X51=.4/GW                                                      SHOWR177
00376   178*         X77=.4/GSK                                                     SHOWR178
00377   179*       135 IF (LPASS.GT.0) GO TO 150                                    SHOWR179
00401   180*         IF (.NOT.STEDDY) GO TO 134                                     SHOWR180
00403   181*         NTYME=25                                                       SHOWR181
00404   182*         GO TO 150                                                      SHOWR182
00405   183*       134 CSKIN=.83*R(85)/3.                                           SHOWR183
00406   184*         CWALL=R(84)                                                    SHOWR184
00407   185*         DTYME=AMIN1(.4*CSKIN/GSK, .4*CWALL/GW, DTH)                    SHOWR185
00410   186*         DUM=R(86)/3600.                                                SHOWR186
00411   187*         IF (FIRST) DUM=DUM/3.                                          SHOWR187
00413   188*         DTYME=AMIN1(DTYME, DUM)                                        SHOWR188
00414   189*       136 NTYME=IFIX(DTH/DTYME+.99)                                    SHOWR189
00415   190*         DTYME=DTH/FLOAT(NTYME)                                         SHOWR190
00416   191*         X51=DTYME/CWALL                                                SHOWR191
00417   192*         X77=DTYME/CSKIN                                                SHOWR192
00417   193*     C                                                                  SHOWR193
00417   194*     C     BEGIN THERMAL/EVAPORATION ITERATIONS HERE                    SHOWR194
00417   195*     C                                                                  SHOWR195
00420   196*       150 LPASS=LPASS+1                                                SHOWR196
00421   197*         IF (B(1) .GT. 1.E-6) GO TO 180                                 SHOWR197
00421   198*     C                                                                  SHOWR198
00421   199*     C                          - EVAPORATION RATE                      SHOWR199
00423   200*         PWOUT=R(88)                                                    SHOWR200
00424   201*         IF (K(NKS+1).LE.0) PWOUT=PSAT(TWOUT)*.95                       SHOWR201
00426   202*         TWINF=.5*(TWIN+TWOUT)                                          SHOWR202
00427   203*         PWINF=.5*(PWIN+PWOUT)                                          SHOWR203
00430   204*         TWINF=AMAX1(TWINF,TSAT(PWINF))                                 SHOWR204
00431   205*         DIFF=R(80)*((460.+TWINF)/537.)**1.75 *14.7/R(4)                SHOWR205
00432   206*         SC=VISCAA/RHOA/DIFF                                            SHOWR206
00433   207*         PR=CPA*VISCAA/XKAA                                             SHOWR207
```

```
00434          HD=HC/CPA/RHOA*(PR/SC)**.67
00435          HD=HD*.43*R(75)
00436          DUM=PSAT(R(51))
00437          DUM2=PSAT(R(77))
00440          EVAPW=HD*R(81)*R(82)/85.8*144.*(DUM/(460.+R(51))-PWINF/(460.+TWINF
00440         * ))
00441          EVAPSK=HD*R(78)/85.8*144.*(DUM2/(460.+R(77))-PWINF/(460.+TWINF))
00442          EVAP=EVAPW+EVAPSK
00443          PVAP=R(4)/(1.+R(5)*WTMCON/(R6+EVAP)/R(9))
00444          DUM=PSAT(TWOUT)*.995
00445          IF (PVAP.LE.DUM) GO TO 160
00447          EVAP=R(5)*DUM/(R(4)-DUM)*WTMCON/R(9) - R6
00450      160 QSKIN=EVAPSK*1042.*EVAP/(EVAPW+EVAPSK)
00451          QWALL=EVAPW *1042.*EVAP/(EVAPW+EVAPSK)
00452          R(6)=R6+EVAP
00453          R(1)=R(5)+R(6)
00454          IF (NSTR(17).EQ.0) GO TO 180
00456          WRITE (6,340) DIFF,PR,SC,HD,PWINF,TWINF,EVAPW,EVAPSK,
00456         * PVAP,PWIN,TWIN,R(51),R(77)
00475      340 FORMAT (' DIFF=',G12.5,'  PR=',G12.5,'  SC=',G12.5, '  HD=',G12.5/
00475         * ' PWINF=',G12.5, ' TWINF=',G12.5, ' EVAPW=',G12.5, ' EVAPSK=',
00475         * G12.5, ' PVAP=',G12.5, ' PWIN=',G12.5/ ' TWIN=',G12.5,
00475         * ' R(51)=',G12.5, ' R(77)=',G12.5/)
00476          WRITE (6,345) KPASS,EVAP,DUM,R(1),R(5),R(6),R6,RR6,R(51),PWOUT
00512      345 FORMAT (' KPASS=',I3, '  EVAP=',G12.5, '  DUM=',G12.5/
00512         * '  R(1)=',G12.5, '  R(5)=',G12.5, '  R(6)=',G12.5, '  R6=',G12.5,
00512         * '  RR6=',G12.5,
00512         * '  R(51)=',G12.5, '  PWOUT=',G12.5)
00512    C
00512    C       THERMAL BALANCE
00512    C
00513      180 R51=R(51)
00514          R77=R(77)
00515          DUM=(R(74)+GRAD) * (R77-R51)
00516          IF (B(1).LT. 1.E-6) GO TO 230
00520          H77=R(1)*CPA *(TWIN-R77)*.5 -(RR6-A(6))*1042.*.7
00521          H51=R(1)*CPA *(TWIN-R51)*.5 -(RR6-A(6))*1042.*.3
00522          GO TO 260
00523      230 H51=GWALL*(TWINF-R51)-QWALL
00524          H77=GSKIN*(TWINF-R77)-QSKIN
00525      260 CONTINUE
00526          R(51)=R51+(DUM-R(53)+R(76)*3.412+H51)*X51
00527          R(77)=R77+(R(66)-DUM+H77)*X77
00527    C
00527    C
00530      300 KPASS=0
00531      305 IF (B(1) .GT. 1.E-6) GO TO 310
00533          R(2)=R2+(GWALL*(R51-TWINF)+GSKIN*(R77-TWINF))/R1/CPA
00534          K(NKS+1)=1
00535          GO TO 320
00536      310 R(2)=.5*(R(77)+R(51))
00537          K(NKS+1)=0
00540      320 DUM=PSAT(R(2))
00541          WSAT=R(5)*WTM ON/R(9)*DUM/(R(4)-DUM)
00542          IF (R(6).LE.WS T) GO TO 325
00544          KPASS=KPASS+1
00545          DUM2=R(6)
00546          R(6)=WSAT
```

```
00547    266*          R(6)=R(6)*.995                                                    SHOWR266
00550    267*          IF (K(NKS+1) .EQ.0) R(7)=R(7) + DUM2-R(6)                         SHOWR267
00552    268*          R(1)=R(5)+R(6)+R(7)                                               SHOWR268
00553    269*          IF (STEDDY) GO TO 315                                             SHOWR269
00555    270*          DUM=EVAPW/(EVAPSK+EVAPW)                                          SHOWR270
00556    271*          IF (B(1).GT.1.E-6) DUM=.3                                         SHOWR271
00560    272*          R(51)=R(51)+ (DUM2-R(6))*DTYME*1042./CWALL * DUM                  SHOWR272
00561    273*          R(77)=R(77)+ (DUM2-R(6))*DTYME*1042./CWALL * (1.-DUM)             SHOWR273
00562    274*    315   IF (KPASS.LE.10) GO TO 305                                      SHOWR274
00564    275*    325   TWOUT=R(2)                                                      SHOWR275
00565    276*          R(80)=R(4)/(1.+R(5)*WTMCON/R(6)/R(9))                             SHOWR276
00566    277*          RR6=R(6)                                                          SHOWR277
00567    278*          RR7=R(7)                                                          SHOWR278
00570    279*          FIRST=.FALSE.                                                     SHOWR279
00571    280*          IF (K(NKS+1).GT.0 .OR. NSTR(17).EQ.0) GO TO 326                   SHOWR280
00573    281*          WRITE (6,355) LPASS,R(1),R(5),R(6),R(7),R(51)                     SHOWR281
00603    282*    355   FORMAT (' LPASS=',I3, '  R(1)=',G12.5, '  R(5)=',G12.5 ,      SHOWR282
00603    283*       * '  R(6)=',G12.5, '  R(7)=',G12.5, '  R(51)=',G12.5)             SHOWR283
00604    284*    326   CONTINUE                                                        SHOWR284
00605    285*          IF (LPASS.GE.NTYME) GO TO 327                                     SHOWR285
00607    286*          IF (.NOT.STEDDY) GO TO 94                                         SHOWR286
00611    287*          IF (ABS(R(51)-R51) .GT. .005) GO TO 94                            SHOWR287
00613    288*    327   CONTINUE                                                        SHOWR288
00614    289*          R(1)=R(5)+R(6)+R(7)                                               SHOWR289
00615    290*          IF (B(1) .LT. 1.E-6) R(83)=R(6)-A(6)                              SHOWR290
00617    291*          CPA=CPAA                                                          SHOWR291
00620    292*          RHOA=RHOAA                                                        SHOWR292
00621    293*          IF (NSTR(17) .EQ.0) RETURN                                        SHOWR293
00623    294*          WRITE (6,330) WCO2,WOXY,GSKIN,GWALL,CSKIN,CWALL,TWOUT,GRAD,GW,GSK SHOWR294
00637    295*    330   FORMAT (/'  WCO2=',G12.5, ' WOXY=',G12.5, ' GSKIN=',G12.5,      SHOWR295
00637    296*       * ' GWALL=',G12.5, ' CSKIN=',G12.5, ' CWALL=',G12.5,              SHOWR296
00637    297*       * ' TWOUT=',G12.5/ ' GRAD=', G12.5, ' GW=',G12.5, ' GSK=',G12.5)  SHOWR297
00640    298*          WRITE (6,335) LPASS,DTYME,QSKIN,QWALL,H51,H77                     SHOWR298
00650    299*    335   FORMAT (1H+,  53X, ' LPASS=',I3, '  DTYME=',G12.5,'  QSKIN=',G12.5SHOWR299
00650    300*       */ ' QWALL=',G12.5,'  H51=',   G12.5,'  H77=',G12.5)              SHOWR300
00651    301*          RETURN                                                            SHOWR301
00652    302*          END                                                               SHOWR302

 END OF COMPILATION:        NO  DIAGNOSTICS.
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@ FOR,* WASDRY,WASDRY
UNIVAC 1108 FORTRAN V EXEC II LEVEL 25A -(EXECB LEVEL E120100DA) 23 SEP 75 4:27
THIS COMPILATION WAS DONE ON 23 SEP 75 AT 04:27:57

SUBROUTINE WASDRY ENTRY POINT 002643

STORAGE USED: CODE(1) 002652; DATA(0) 000271; BLANK COMMON(2) 000000

COMMON BLOCKS:

0003	COMP	000117
0004	RARRAY	000150
0005	KANDV	000001
0006	MISC	000036
0007	PROPTY	001002
0010	SOURCE	000102

EXTERNAL REFERENCES (BLOCK, NAME)

0011	HG
0012	HF
0013	HBALNC
0014	PROP
0015	QSURR
0016	PSAT
0017	TSAT
0020	NADUS
0021	NIO2S
0022	SQRT
0023	NEXP6S
0024	NERR2S
0025	NERR3S

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0001		000622	10L	0001		001443	110L	0001		001456	114L	0001		001501	130L	0001		001547	131L
0001		001605	132L	0001		001666	140L	0001		000732	15L	0001		001710	150L	0001		001725	160L
0001		000745	17L	0001		001743	170L	0001		000753	20L	0001		002006	200L	0000		000141	2040F
0001		002031	205L	0000		000057	2050F	0001		002107	250L	0001		002137	263L	0001		002153	265L
0001		002164	280L	0001		002170	285L	0001		002175	286L	0001		002245	289L	0001		002261	289L
0001		002271	290L	0001		002307	293L	0000		000046	30F	0001		000640	3076	0001		002321	310L
0001		002405	330L	0001		002422	340L	0001		002432	345L	0001		002443	350L	0001		002465	355L
0001		002475	360L	0001		002506	365L	0001		002507	370L	0001		002526	372L	0001		002532	375L
0001		000437	4L	0001		002554	400L	0001		002611	450L	0001		001062	50L	0001		000570	6L
0001		001125	70L	0001		001205	75L	0001		001223	90L	0001		001230	92L	0001		001316	93L
0001		001335	95L	0001		001336	97L	0010	R	000000	A	0010	R	000023	B	0000	R	000023	C
0007		000001	CP	0010	R	000046	CPA	0010	R	000047	CPB	0007		000144	CPCONL	0007		000145	CPCONV
0007		000146	CPCO2	0007		000147	CPDIL	0007		000150	CPOXY	0007		000151	CPTC	0007		000000	CPO
0004	R	000154	CSTART	0000	R	000037	DH	0000	R	000034	DIFF	0003		000000	DS	0000	R	000005	DTH
0006	R	000000	DTIME	0004	R	000150	DTYME	0000	R	000004	DUM	0000	R	000045	DUM2	0000	R	000032	EVAP
0000	R	000007	GAIR	0007		000152	GAMGAS	0006		000001	GRAV	0000	R	000013	HC	0000	R	000036	HD
0012	R	000000	HF	0011	R	000000	HG	0000	R	000014	HMIX	0010		000050	IA1	0010		000051	IB1
0004		000000	IMAXR	0000		000253	INJPS	0005	I	000000	K	0006		000002	KFLSYS	0006		000003	KOUTPT

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0000 I 000042 KPASS     0006   000004 KPDROP   0006   000005 KSYPAS   0006   000006 KTRANS   0000 I 000003 L
0000 I 000024 LPASS     0000 I 000002 LPHASE   0006   000007 LPSUM    0006   000014 MAXCI    0006   000015 MAXLP
0006   000016 MAXSLP    0006   000017 MAXSSI   0006   000024 MINSSI   0003 I 000017 N        0010   000052 NA
0003   000020 NA1       0010   000053 NB       0003   000021 NB1      0003   000022 NC       0003   000023 NCAB
0003 I 000024 NCFL      0006   000020 NCOMPS   0006 I 000021 NEWDT    0003   000025 NEXT     0003   000026 NEXV
0003   000027 NK        0003   000030 NKEX     0003 I 000031 NKS      0003   000032 NKT      0006   000022 NLAST
0003   000033 NLFL      0003   000034 NP       0006   000023 NPASPD   0003 I 000035 NPASS    0003 I 000036 NPF
0010   000054 NPFS      0010   000055 NPFST    0003   000037 NPFT     0000 I 000001 NPHASE   0003   000045 NQ
0003   000046 NS        0003 I 000047 NSF      0010   000063 NSFS     0010   000064 NSFST    0003 I 000050 NSFT
0003 I 000056 NSTR      0003   000100 NSUBR    0000 I 000022 NTYME    0003   000101 NV       0003   000102 NVT
0006   000025 PGMIN     0006   000026 PLMIN    0000 R 000006 PR       0016 R 000000 PSAT     0000 R 000041 PVAP
0000 R 000021 PWIN      0000 R 000027 PWINF    0000 R 000025 PWOUT    0000 R 000011 QEVAP    0000 R 000010 QMOTOR
0004 R 000001 R         0000 R 000012 RE       0000 R 000031 RESID    0007   000154 RHO      0010   000072 RHOA
0010 R 000073 RHOB      0007   000153 RHOO     0000 R 000017 R20      0000 R 000020 R25      0000 R 000035 SC
0006   000027 START     0006 L 000030 STEADY   0000 L 000000 STEDDY   0006 R 000031 TIME     0006   000032 TIMEMX
0006   000033 TMAX      0006   000034 TMIN     0017 R 000000 TSAT     0000 R 000043 TTUB     0000 R 000016 TWIN
0000 R 000030 TWINF     0000 R 000026 TWOUT    0005   000000 V        0007   000320 VISC     0010   000074 VISCA
0010 R 000075 VISCB     0007   000317 VISCO    0007 R 000463 VISGAS   0007   001001 VISLIQ   0004 R 000120 VMAX
0000 R 000033 VREL      0000 R 000040 W        0000 R 000015 WLCOND   0000 R 000044 WSAT     0007   000465 WTM
0010   000076 WTMA      0006   000035 WTMAX    0010 R 000077 WTMB     0007 R 000630 WTMCON   0007   000631 WTMOIL
0007   000632 WTMTC     0007   000464 WTMO     0007   000634 XK       0010   000100 XKA      0010 R 000101 XKB
0007   000777 XKGAS     0007   001000 XKLIQ    0007   000633 XKO      0003   000103 Y
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00101          SUBROUTINE WASDRY                                                    WASDR001
00103          COMMON /COMP/ DS(15),N,NA1,NB1,NC,NCAB,NCFL,NEXT,NEXV,NK,            WASDR002
00103         1 NKEX,NKS,NKT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),           WASDR003
00103         2 NSTR(18),NSUBR,NV,NVT,Y(12)                                         WASDR004
00104          COMMON /RARRAY/  IMAXR,R(1)                                          WASDR005
00105          COMMON /KANDV/ K                                                     WASDR006
00106          COMMON /MISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,        WASDR007
00106         1  LPSUM(5),MAXCI,MAXLP,MAXSLP,MAXSSI,NCOMPS,NEWDT,NLAST,NPASPD,      WASDR008
00106         2  MINSSI,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX        WASDR009
00107          COMMON /PROPTY/ CPO,CP(99),CPCONL,CPCONV,CPCO2,CPOIL,CPOXY,CPTC,     WASDR010
00107         1  GAMGAS,RHOO,RHO(99),VISCO,VISC(99),VISGAS,WTMO,WTM(99),WTMCON,     WASDR011
00107         2  WTMOIL,WTMTC,XKO,XK(99),XKGAS,XKLIQ,VISLIQ                         WASDR012
00110          COMMON /SOURCE/  A(19),B(19),CPA,CPB,IA1,IB1,NA,NB,NPFS,NPFST(6),    WASDR013
00110         1 NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,WTMA,WTMB,XKA,XKB               WASDR014
00111          DIMENSION V(1),K(1)                                                  WASDR015
00112          EQUIVALENCE (V,K), (R(108),CSTART), (R(80),VMAX), (R(104),DTYME)     WASDR016
00113          LOGICAL STEADY,STEDDY                                                WASDR017
00113     C                                                                         WASDR018
00113     C    THIS SUBROUTINE MODELS A CLOTHES/DISHES WASHER, DRYER, OR            WASDR019
00113     C    WASHER-DRYER COMBINATION.                                            WASDR020
00113     C    THE FOLLOWING USAGE PHASES MAY BE SELECTED.                          WASDR021
00113     C        PHASE 0 - UNIT OFF                                               WASDR022
00113     C        PHASE 1 - WASH WATER FILL                                        WASDR023
00113     C        PHASE 2 - WASH (CIRCULATE)                                       WASDR024
00113     C        PHASE 3 - SPIN DRY. WASH WATER OUT                               WASDR025
00113     C        PHASE 4 - RINSE WATER FILL                                       WASDR026
00113     C        PHASE 5 - RINSE (CIRCULATE)                                      WASDR027
00113     C        PHASE 6 - SPIN DRY. RINSE WATER OUT                              WASDR028
00113     C        PHASE 7 - DRY                                                    WASDR029
00113     C    THE ROUTINE MAY ALSO BE USED FOR STATIONARY RACK-DRYING              WASDR030
00113     C    OF TOWELS/WASHCLOTHS IN EITHER PHASE 0 OR 7.                         WASDR031
00113     C                                                                         WASDR032
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```
00114    33*
00115    34*
00117    35*
00120    36*
00122    37*
00122    38*      C
00122    39*      CC      INITIALIZE WASHER/DRYER DATA
00122    40*      C
00123    41*
00125    42*
00127    43*
00131    44*
00133    45*
00135    46*
00137    47*
00141    48*
00143    49*
00145    50*
00147    51*
00151    52*
00153    53*
00155    54*
00157    55*
00161    56*
00163    57*
00165    58*
00167    59*
00171    60*
00173    61*
00175    62*
00177    63*
00201    64*
00203    65*
00205    66*
00206    67*
00210    68*
00212    69*
00214    70*
00216    71*
00220    72*
00222    73*
00224    74*
00226    75*
00230    76*
00232    77*
00234    78*
00236    79*
00240    80*
00241    81*
00243    82*
00245    83*
00247    84*
00251    85*
00253    86*
00255    87*
00257    88*
00261    89*
00263    90*

      STEDDY=STEADY
      IF (NSTR(16).EQ.1) STEDDY=.TRUE.
      NPHASE=K(NKS+1)
      IF (.NOT.STEADY) NPHASE=IFIX(R(95)+.2)
      LPHASE=NPHASE

      IF (NPASS .GT.0) GO TO 10
      IF (R(51) .LT. .0001) R(51)=70.
      IF (R(54) .LT. .0001) R(54)=70.
      IF (R(55) .LT. .0001) R(55)=3.
      IF (R(57) .LT. .0001) R(57)=70.
      IF (R(58) .LT. .0001) R(58)=1.
      IF (R(60) .LT. .0001) R(60)=70.
      IF (R(61) .LT. .0001) R(61)=4.
      IF (R(63) .LT. .0001) R(63)=70.
      IF (R(68) .LT. .0001) R(68)=50.
      IF (R(70) .LT. .0001) R(70)=150.
      IF (R(72) .LT. .0001) R(72)=70.
      IF (R(76) .LT. .0001) R(76)=12.
      IF (R(77) .LT. .0001) R(77)=.25
      IF (R(81) .LT. .0001) R(81)=8.
      IF (R(82) .LT. .0001) R(82)=16.
      IF (R(83) .LT. .0001) R(83)=120.
      IF (R(86) .LT. .0001) R(86)=.8
      IF (R(88) .LT. .0001) R(88)=1.0
      IF (R(94) .LT. .0001) R(94)=.01974
      IF (R(97) .LT. .0001) R(97)=30.
      IF (R(98) .LT. .0001) R(98)=30.
      IF (R(105).LT. .0001) R(105)=10.
      IF (R(110).LT. .0001) R(110)=6.
      IF (K(NKS+2) .EQ. 0) K(NKS+2)=1
      K(NKS+3)=-1
      IF (NSTR(4).GT.0) GO TO 4
      IF (R(66) .LT. .0001) R(66)=4.
      IF (R(75) .LT. .0001) R(75)=.2
      IF (R(78) .LT.1.E-20) R(78)=.05
      IF (R(79) .LT. .0001) R(79)=240.
      IF (R(80) .LT. .0001) R(80)=3343.
      IF (R(87) .LT. .0001) R(87)=10.
      IF (R(89) .LT. .0001) R(89)=.4
      IF (R(102).LT. .0001) R(102)=55.
      IF (R(103).LT. .0001) R(103)=55.
      IF (R(106).LT. .0001) R(106)=4.
      IF (R(107).LT. .0001) R(107)=10.
      IF (R(109).LT. .0001) R(109)=.2
      GO TO 6
    4 IF (R(66) .LT. .0001) R(66)=15.2
      IF (R(75) .LT. .0001) R(75)=.25
      IF (R(78) .LT.1.E-20) R(78)=.0001
      IF (R(79) .LT. .0001) R(79)=90.
      IF (R(80) .LT. .0001) R(80)=10587.
      IF (R(87) .LT. .0001) R(87)=.45
      IF (R(89) .LT. .0001) R(89)=.4
      IF (R(102).LT. .0001) R(102)=15.
      IF (R(103).LT. .0001) R(103)=15.
      IF (R(106).LT. .0001) R(106)=4.

WASDR033
WASDR034
WASDR035
WASDR036
WASDR037
WASDR038
WASDR039
WASDR040
WASDR041
WASDR042
WASDR043
WASDR044
WASDR045
WASDR046
WASDR047
WASDR048
WASDR049
WASDR050
WASDR051
WASDR052
WASDR053
WASDR054
WASDR055
WASDR056
WASDR057
WASDR058
WASDR059
WASDR060
WASDR061
WASDR062
WASDR063
WASDR064
WASDR065
WASDR066
WASDR067
WASDR068
WASDR069
WASDR070
WASDR071
WASDR072
WASDR073
WASDR074
WASDR075
WASDR076
WASDR077
WASDR078
WASDR079
WASDR080
WASDR081
WASDR082
WASDR083
WASDR084
WASDR085
WASDR086
WASDR087
WASDR088
WASDR089
WASDR090
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00265     91*          IF (NSTR(1).EQ.3) R(106)=0.                                    WASDR091
00267     92*          IF (R(107).LT. .0001) R(107)=10.                               WASDR092
00271     93*          IF (R(109).LT. .0001) R(109)=.01                               WASDR093
00273     94*        6 IF (STEADY) GO TO 10                                           WASDR094
00275     95*          IF (R(96).GT. .0001) GO TO 10                                  WASDR095
00277     96*          IF ((NPHASE-7)*(NPHASE-4).NE.0) GO TO 10                       WASDR096
00301     97*        8 IF (NSTR(4) .EQ. 0) R(96)=R(77)*R(66)                          WASDR097
00303     98*          IF (NSTR(4) .EQ. 1) R(96)=R(94)*R(66)                          WASDR098
00305     99*       10 CONTINUE                                                       WASDR099
00305    100*  C                                                                     WASDR100
00305    101*  CC        SET OUTLET FLOWRATES BASED ON CYCLE PHASE                   WASDR101
00305    102*  C                                                                     WASDR102
00306    103*       11 DO 12 L=1,19                                                  WASDR103
00311    104*          R(L+19)=0.                                                     WASDR104
00312    105*          IF (NPHASE.EQ.7 .OR. NSTR(1).EQ.3) R(L+19)=B(L)                WASDR105
00314    106*          R(L)=0.                                                        WASDR106
00315    107*       12 IF (NPHASE.EQ.2 .OR. NPHASE.EQ.5) R(L)=A(L)                   WASDR107
00320    108*          R(3)=A(4)                                                      WASDR108
00321    109*          R(22)=B(4)                                                     WASDR109
00322    110*          IF (STEDDY .OR. (NPHASE-3)*(NPHASE-6).NE.0) GO TO 20           WASDR110
00324    111*          DUM=R(77)                                                      WASDR111
00325    112*          IF (NSTR(4).EQ.1) DUM=R(94)                                    WASDR112
00327    113*          IF (NPHASE.EQ.6) GO TO 15                                      WASDR113
00331    114*          R(1)=(R(102)-DUM*R(66)) /R(110)*60.                            WASDR114
00332    115*          R(16)=R(1)*R(73)                                               WASDR115
00333    116*          GO TO 17                                                       WASDR116
00334    117*       15 R(1)=(R(103)-DUM*R(66)) /R(110)*60.                           WASDR117
00335    118*          R(16)=R(1)*R(73)*DUM*R(66)/R(103)                              WASDR118
00336    119*       17 IF (NPF.EQ.0) GO TO 20                                        WASDR119
00340    120*          R(15)=R(1)                                                     WASDR120
00341    121*          R(1)=R(15)+R(16)                                               WASDR121
00342    122*       20 CONTINUE                                                       WASDR122
00343    123*          IF (NEWDT .LT.0) RETURN                                        WASDR123
00345    124*          IF (NSTR(17).NE.0) WRITE (6,30) N                              WASDR124
00351    125*       30 FORMAT (///'  COMPONENT NO.', I5, '  CHECKOUT OF WASDRY'/)     WASDR125
00352    126*          DTH=DTIME/3600.                                                WASDR126
00353    127*          R(92)=0.                                                       WASDR127
00354    128*          R(93)=0.                                                       WASDR128
00355    129*          PR=CPB*VISCB/XKB                                               WASDR129
00356    130*          GAIR=B(1)*CPB                                                  WASDR130
00357    131*          IF (NSTR(1).LT.3) GO TO 50                                     WASDR131
00361    132*          QMOTOR=0.                                                      WASDR132
00362    133*          QEVAP=0.                                                       WASDR133
00363    134*          DUM=.5*SQRT(R(87)*R(66))                                       WASDR134
00364    135*          RE=VMAX*DUM*RHOB/VISCB                                         WASDR135
00365    136*          HC=XKB/DUM*.664*RE**.5 *PR**.33                                WASDR136
00366    137*          GAIR=1./ (1./GAIR+1./ (HC*R(87)*R(66)))                        WASDR137
00367    138*       50 IF (NPHASE .EQ. 7) GO TO 70                                   WASDR138
00371    139*          IF (.NOT.STEDDY) R(96)=R(96)+ (A(1)-R(1))*DTH                  WASDR139
00373    140*          QEVAP=0.                                                       WASDR140
00374    141*          QMOTOR=R(68)*3.412                                             WASDR141
00375    142*          IF (NPHASE.EQ.3 .OR. NPHASE.EQ.6) QMOTOR=R(70)*3.412           WASDR142
00377    143*          IF (NPHASE.EQ.0) QMOTOR=0.                                     WASDR143
00401    144*          GO TO 90                                                       WASDR144
00401    145*  C                                                                     WASDR145
00401    146*  CC        INITIALIZE DRYER EVAPORATION PARAMETERS (NPHASE=7)          WASDR146
00401    147*  C                                                                     WASDR147
00402    148*       70 IF (B(7) .LT. 1.E-8) GO TO 75                                 WASDR148
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00404   149*          HMIX=R(24)*R(27)*R(21)+R(25)*HG(R(21))+R(26)*HF(R(21))                WASDR149
00405   150*          CALL HBALNC(HMIX,R(20),NSTR(1),NCFL,WLCOND)                           WASDR150
00406   151*          CALL PROP(R(20),NSF,  NSFT,CPB,WTMB,RHOB,VISCB,XKB)                   WASDR151
00407   152*          IF (.NOT.STEADY) R(96)=R(96)+R(26)*DTH                                WASDR152
00411   153*          R(20)=R(20)-R(26)                                                     WASDR153
00412   154*          R(26)=0.                                                              WASDR154
00413   155*       75 TWIN=R(21)                                                            WASDR155
00414   156*          R20=R(20)                                                             WASDR156
00415   157*          R25=R(25)                                                             WASDR157
00416   158*          PWIN=R(23)/(1.+R(24)/R25*WTMCON/R(28))                                WASDR158
00416   159*     C                                                                          WASDR159
00416   160*     C       GET COMPUTING TIME INCREMENT AND NUMBER OF PASSES                  WASDR160
00416   161*     C                                                                          WASDR161
00417   162*       90 IF (.NOT. STEDDY) GO TO 92                                            WASDR162
00421   163*          NTYME=20                                                              WASDR163
00422   164*          GO TO 95                                                              WASDR164
00423   165*       92 C=R(106)+R(96)+R(66)*R(75)                                            WASDR165
00424   166*          DTYME=C/ (R(76)+A(1)*CPA+GAIR)*.3                                     WASDR166
00425   167*          CALL QSURR                                                            WASDR167
00426   168*          DUM=R(107)/(R(52)+R(76))*.5                                           WASDR168
00427   169*          DTYME=AMIN1(DTYME,DUM,DTH)                                            WASDR169
00430   170*          IF (NPHASE.LT.7) GO TO 93                                             WASDR170
00432   171*          DUM=R(105)/3600.                                                      WASDR171
00433   172*          IF (K(NKS+3) .NE. 7) DUM=DUM/3.                                       WASDR172
00435   173*          DTYME=AMIN1(DTYME,DUM)                                                WASDR173
00436   174*       93 NTYME=IFIX(DTH/DTYME+.99)                                             WASDR174
00437   175*          DTYME=DTH/FLOAT(NTYME)                                                WASDR175
00437   176*     C                                                                          WASDR176
00437   177*     C       BEGIN THERMAL ITERATIONS HERE                                      WASDR177
00437   178*     C                                                                          WASDR178
00440   179*       95 LPASS=0                                                               WASDR179
00441   180*       97 LPASS=LPASS+1                                                         WASDR180
00442   181*          IF (NPHASE .LT. 7) GO TO 200                                          WASDR181
00442   182*     C                                                                          WASDR182
00442   183*     C       DRYER EVAPORATION PROCESS                                          WASDR183
00442   184*     C                                                                          WASDR184
00444   185*          PWOUT=R(91)                                                           WASDR185
00445   186*          IF (LPASS.EQ.1 .AND. K(NKS+3).LT.7) PWOUT=PSAT(R(72))*.9              WASDR186
00447   187*          TWOUT=R(72)                                                           WASDR187
00450   188*          PWINF=.5*(PWIN+PWOUT)                                                 WASDR188
00451   189*          TWINF=.5*(TWIN+R(72))                                                 WASDR189
00452   190*          TWINF=AMAX1( TWINF,TSAT(PWINF))                                       WASDR190
00453   191*          IF (.NOT.STEADY) GO TO 110                                            WASDR191
00455   192*          IF (NSTR(2)-1) 105,150,110                                            WASDR192
00460   193*      105 RESID=R(77)                                                           WASDR193
00461   194*          IF (NSTR(4).EQ.1) RESID=R(94)                                         WASDR194
00463   195*          EVAP=(RESID-R(78))*R(66)/R(79)*60.                                    WASDR195
00464   196*          GO TO 140                                                             WASDR196
00465   197*      110 IF (NSTR(3)-1) 130,112,114                                            WASDR197
00470   198*      112 VMAX=R20  /RHOB/R( 81)*144.                                           WASDR198
00471   199*          GO TO 130                                                             WASDR199
00472   200*      114 VMAX=3.14*R( 82)/12.*R( 83)*60.                                       WASDR200
00473   201*          IF (NSTR(3).EQ.3) VMAX=AMIN1(VMAX,R20  /RHOB/R(81)*144.)              WASDR201
00475   202*      130 VREL=VMAX*R(86)                                                       WASDR202
00476   203*          DIFF=R( 88)*((R(72)+460.)/537.)**1.75*14.7/R(23)                      WASDR203
00477   204*          SC=VISGAS/RHOB/DIFF                                                   WASDR204
00500   205*          IF (NSTR(1) .LT. 3) GO TO 131                                         WASDR205
00502   206*          HD=HC/CPB/RHOB*(PR/SC)**.67                                           WASDR206
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00503            GO TO 132
00504        131 DH=SQRT(4.*R20/RHOB/VREL/3.14)
00505            RE=VREL*DH*RHOB/VISGAS
00506            HD=.023*DIFF/DH*RE**.83*SC**.44
00507        132 HD=HD*R(89)
00510            R(92)=HD*R(87)*R(66)/85.8*144.*(PSAT(R(72))/(460.+R(72)) -
00510           *   PWINF/(460.+TWINF))
00511            EVAP=R(92)
00511      C        MODIFY FREE WATER EVAPORATION FOR SURFACE TENSION RESISTANCE
00511      C          (CLOTHES) OR WETTED SURFACE AREA (DISHES)
00511      C
00512            L=67
00513            IF (.NOT.STEADY) L=96
00515            W=R(L)/R(66)
00516            IF (W.GT.R(109) .OR. EVAP.LT.0.) GO TO 140
00520            EVAP=EVAP*W/R(109)
00521        140 PVAP=R(23)/(1.+R(24)*WTMCON/(R25+EVAP)/R(28))
00522            IF (PVAP .LE. PSAT(R(72))*.995) GO TO 160
00522      C        SATURATED DRYER OUTLET
00524        150 DUM=PSAT(R(72))*.995
00525            EVAP=(R(24)*DUM/(R(23)-DUM)*WTMCON/R(28)) -R25
00526        160 IF (STEADY) GO TO 170
00530            R(96)=R(96)-EVAP*DTYME
00531            IF (R(96) .GE. 0.) GO TO 170
00533            EVAP=R(96)/DTYME+EVAP
00534            R(96)=0.
00535        170 QEVAP=EVAP*1042.
00536            R(25)=R25+EVAP
00537            R(20)=R(24)+R(25)
00540            QHOTOR=R(68)*3.412
00541            IF (NSTR(17).EQ.0) GO TO 200
00543            WRITE (6,2050) VMAX,VREL,DH,RE,DIFF,SC,HD,PWINF,TWINF,
00543           * PR,PVAP,PWIN,TWIN,PWOUT,TWOUT,EVAP,KPASS
00566       2050 FORMAT ( ' VMAX=',G12.5,'  VREL=',G12.5,
00566           1 '   DH=',G12.5,  '   RE=',G12.5/
00566           *               '  DIFF=',G12.5,'  SC=',G12.5,'   HD=',G12.5,
00566           3 '  PWINF=',G12.5, '  TWINF=',G12.5, '   PR=',G12.5/
00566           4 '  PVAP=',G12.5,
00566           5 '  PWIN=',G12.5, '  TWIN=',G12.5/ '  PWOUT=',G12.5,
00566           * '  TWOUT=',G12.5, '  EVAP=',G12.5, '  KPASS=',I3/)
00566      C
00566      C        THERMAL EXCHANGE
00566      C
00567        200 CALL QSURR
00570            IF (NSTR(1).LT.3) GO TO 205
00572            IF (.NOT.STEDDY) GO TO 250
00574            R(72)=(GAIR*R(21)+R(76)*R(51)) /(R(76)+GAIR)
00575            GO TO 263
00576        205 IF (.NOT.STEDDY) GO TO 250
00576      C        STEADY STATE THERMAL BALANCE
00600            TTUB=R(72)
00601            DUM=.5
00602            IF (NPHASE .EQ. 7) DUM=.1
00604            R(72)=TTUB+(R(76)*(R(51)-TTUB)+A(1)*CPA*(A(2)-TTUB)+GAIR*(B(2)-
00604           *  TTUB)-QEVAP)*DUM/ (GAIR+A(1)*CPA+R(76))
00605            R(51)=R(51)+(R(76)*(TTUB-R(51))+QHOTOR-R(53))*DUM/ (R(52)+R(76))
00606            GO TO 280
00606      C        TRANSIENT THERMAL BALANCE
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00607   265*          250 TTUB=R(72)
00610   266*              R(72)=R(72)+(R(76)*(R(51)-R(72))+A(1)*CPA*(A(2)-R(72))+GAIR
00610   267*             *  *(B(2)-R(72))-QEVAP)*DTYME/C
00611   268*              IF (NSTR(1) .LT. 3) GO TO 265
00613   269*          263 R(21)=(R(20)*CPB*R(21)+R(76)*R(72))/(R(20)*CPB+R(76))
00614   270*              GO TO 285
00615   271*          265 R(51)=R(51)+(R(76)*(TTUB-R(51))+QMOTOR-R(53))*DTYME/R(107)
00616   272*          280 R(21)=R(72)
00617   273*              R(2)=R(72)
00620   274*          285 IF (NPHASE .NE. 7) GO TO 290
00620   275*    C
00620   276*    CCC       CHECK FOR DRYER SATURATION AND RE-ITERATION
00620   277*    C
00622   278*              KPASS=0
00623   279*          286 DUM=PSAT(R(21))
00624   280*              WSAT=R(24)*WTMCON/R(28)*DUM/(R(23)-DUM)
00625   281*              IF (R(25).LE.WSAT) GO TO 289
00627   282*              KPASS=KPASS+1
00630   283*              DUM2=R(25)
00631   284*              R(25)=WSAT
00632   285*              R(25)=R(25)*.995
00633   286*              IF (STEADY) GO TO 288
00635   287*              R(96)=R(96)+(DUM2-R(25))*DTYME
00636   288*              IF (STEDDY) GO TO 298
00640   289*              R(72)=R(72)+(DUM2-R(25))*DTYME*1042./C
00641   290*          288 R(21)=R(72)
00642   291*              R( 2)=R(72)
00643   292*              R(20)=R(24)+R(25)
00644   293*              IF (KPASS.LT.10) GO TO 286
00646   294*          289 R(91)=R(23)/(1.+R(24)*WTMCON/R(25)/R(28))
00647   295*          290 IF (LPASS.GE.NTYME) GO TO 293
00651   296*              IF (.NOT.STEDDY) GO TO 97
00653   297*              IF (ABS(R(72)-TTUB) .GT. .01) GO TO 97
00655   298*          293 CONTINUE
00655   299*    C
00655   300*    CCC       PERFORM CYCLE PHASE LOGIC IF REQUESTED BY NSTR(5)
00655   301*    C
00656   302*          300 IF (NSTR(5).EQ.0 .OR. STEADY) GO TO 400
00660   303*              IF (NPHASE.GT.0) GO TO 330
00660   304*    C         CHECK FOR UNIT STARTUP WHEN IT IS OFF
00662   305*          310 L=K(NKS+2)+98
00663   306*              IF (TIME .LT. R(L)*3600.-DTIME) GO TO 400
00665   307*              LPHASE=1
00666   308*              IF (NSTR(1) .GE. 2) LPHASE=7
00670   309*              CSTART=TIME+DTIME
00671   310*              R(L)=R(L)+24.
00672   311*              K(NKS+2)=K(NKS+2) +1
00673   312*              IF (L.EQ.101 .OR. R(L+1).LT. .001) K(NKS+2)=1
00675   313*              GO TO 400
00675   314*    C         CHECK FOR END OF CURRENT CYCLE PHASE
00676   315*          330 GO TO (340,345,350,355,360,365,370), NPHASE
00676   316*    C         CHECK FOR END OF CYCLE PHASE 1 (WASH WATER FILL)
00677   317*          340 IF (R(96).LT.R(102)) GO TO 400
00701   318*              R(96)=R(102)
00702   319*              GO TO 395
00702   320*    C         CHECK FOR END OF CYCLE PHASE 2 (WASH WATER CIRCULATE)
00703   321*          345 IF (TIME-CSTART .LT. R(97)*60.) GO TO 400
00705   322*              GO TO 395
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WASDR265
WASDR266
WASDR267
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WASDR321
WASDR322
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00706    323*      C        CHECK FOR END OF CYCLE PHASE 3 (SPIN DRY, WASH WATER OUT)          WASDR323
00707    324*        350 RESID=R(77)                                                          WASDR324
00710    325*            IF (NSTR(4) .EQ. 1) RESID=R(94)                                      WASDR325
00712    326*            IF (R(96)/R(66) .GT. RESID) GO TO 400                                WASDR326
00714    327*            R(96)=RESID*R(66)                                                    WASDR327
00715    328*            GO TO 395                                                            WASDR328
00715    329*      C        CHECK FOR END OF CYCLE PHASE 4 (RINSE WATER FILL)                 WASDR329
00716    330*        355 IF (R(96).LT.R(103)) GO TO 400                                       WASDR330
00720    331*            R(96)=R(103)                                                         WASDR331
00721    332*            GO TO 395                                                            WASDR332
00721    333*      C        CHECK FOR END OF CYCLE PHASE 5 (RINSE WATER CIRCULATE)            WASDR333
00722    334*        360 IF (TIME-CSTART .LT. R(98)*60.) GO TO 400                            WASDR334
00724    335*            GO TO 395                                                            WASDR335
00724    336*      C        CHECK FOR END OF CYCLE PHASE 6 (SPIN DRY, RINSE WATER OUT)        WASDR336
00725    337*        365 GO TO 350                                                            WASDR337
00725    338*      C        CHECK FOR END OF CYCLE PHASE 7 (DRY)                              WASDR338
00726    339*        370 IF (TIME-CSTART .GE. R(79)*60.) GO TO 372                            WASDR339
00730    340*            IF (R(96)/R(66) .LT. R(78)) GO TO 372                                WASDR340
00732    341*            GO TO 400                                                            WASDR341
00733    342*        372 CSTART=-1.                                                           WASDR342
00734    343*            LPHASE=0                                                             WASDR343
00735    344*            GO TO 310                                                            WASDR344
00736    345*        395 LPHASE=NPHASE+1                                                      WASDR345
00737    346*            IF (LPHASE.EQ.7 .AND. NSTR(1).EQ.1) LPHASE=0                         WASDR346
00741    347*            CSTART=TIME                                                          WASDR347
00742    348*        400 IF (.NOT.STEADY .AND. NSTR(5).EQ.1) R(95)=FLOAT(LPHASE)              WASDR348
00744    349*            K(NKS+3)=NPHASE                                                      WASDR349
00745    350*            R(65)=QMOTOR                                                         WASDR350
00746    351*            IF (NPHASE .LT. 7) GO TO 450                                         WASDR351
00750    352*            R(93)=R(25)-B(6)                                                     WASDR352
00751    353*            R(20)=R(24)+R(25)                                                    WASDR353
00752    354*        450 CONTINUE                                                             WASDR354
00753    355*            IF (NSTR(17) .EQ. 0) RETURN                                          WASDR355
00755    356*            WRITE (6,2040) NPHASE,LPHASE,QEVAP,C                                 WASDR356
00763    357*       2040 FORMAT (/' NPHASE=',I3, '   LPHASE=',I3, '  QEVAP=',G12.5,         WASDR357
00763    358*           * '  C=',G12.5/)                                                     WASDR358
00764    359*            RETURN                                                               WASDR359
00765    360*            END                                                                  WASDR360

      END OF COMPILATION:       NO  DIAGNOSTICS.
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@ FOR WASTEC,WASTEC
UNIVAC 1108 FORTRAN V EXEC II LEVEL 25A -(EXEC8 LEVEL E120100108A) 25 AUG 75
THIS COMPILATION WAS DONE ON 25 AUG 75 AT 18:41:12

SUBROUTINE WASTEC ENTRY POINT 001776

STORAGE USED: CODE(1) 002005 DATA(0) 000176 BLANK COMMON(2) 000000

COMMON BLOCKS:

0003	CONP	000117
0004	RARRAY	000002
0005	KANDV	000001
0006	MISC	000036
0007	PROPTY	001002
0010	SOURCE	000102
0011	MAXRI	000001

EXTERNAL REFERENCES (BLOCK, NAME)

0012	HG
0013	HF
0014	HBALNC
0015	PROP
0016	QSURR
0017	PSAT
0020	NWDUS
0021	NIO2S
0022	SQRT
0023	NERR35

STORAGE ASSIGNMENT (BLOCK, TYPE, RELATIVE LOCATION, NAME)

0001		000570	10L	0001		001117	1000L	0001		000623	16L	0001		000647	17L	0001		000716	18L
0001		000722	20L	0001		001423	2000L	0001		001424	2100L	0001		001530	2300L	0001		001615	2400L
0001		000500	246G	0001		001643	2500L	0000		000027	3F	0001		001650	3000L	0001		001706	3200L
0001		001726	3500L	0001		001233	374G	0001		000336	4L	0001		000342	5L	0001		001004	500L
0001		000424	6L	0001		000444	7L	0001		001254	74L	0001		001263	800L	0001		001331	820L
0001		001355	840L	0001		001412	860L	0000		000040	901F	0010	R	000000	A	0010	R	000023	B
0000	R	000011	CAP	0007		000001	CP	0010	R	000046	CPA	0010	R	000047	CPB	0000	R	000005	CPBB
0007		000144	CPCONL	0007		000145	CPCONV	0007		000146	CPCO2	0007		000147	CPDIL	0007		000150	CPOXY
0007		000151	CPTC	0007		000000	CPO	0003		000000	DS	0000	R	000021	DTH	0006	R	000000	DTIME
0000	R	000022	DTNIN	0000	R	000019	DTYNE	0000	R	000015	DUM	0000	R	000024	DUM2	0007		000152	GAMGAS
0006		000001	GRAV	0013	R	000000	HF	0012	R	000000	HG	0000	R	000013	HMIX	0010		000050	IAI
0010		000051	IBI	0004		000000	IMAXR	0000		000156	INJPS	0005	I	000000	K	0006		000002	KFLSYS
0006		000003	KOUTPT	0006		000004	KPDROP	0006		000035	KSYPAS	0006		000006	KTRANS	0000	I	000007	L
0000	I	000016	LLL	0000	I	000001	LMAX	0000	I	000017	LPASS	0006		000007	LPSUM	0006		000014	MAXCI
0006		000015	MAXLP	0011		000000	MAXR	0006		000016	MAXSLP	0006		000017	MAXSSI	0006		000024	MINSSI
0003	I	000017	N	0010		000052	NA	0003		000020	NAI	0010		000053	NB	0003		000021	NBI
0003		000022	NC	0003		000023	NCAB	0003	I	000024	NCFL	0006		000070	NCOMPS	0006	I	000021	NEWDT
0003		000025	NEXT	0003		000026	NEXV	0003		000027	NK	0003		000030	NKEX	0003		000031	NKS
0003	I	000032	NKT	0006		000022	NLAST	0003		000033	NLFL	0003		000034	NP	0006		000023	NPASPD
0003	I	000035	NPASS	0003	I	000036	NPF	0010		000054	NPFS	0010		000055	NPFST	0003	I	000037	NPFT
0000	I	000004	NPHASE	0003		000045	NQ	0003		000046	NS	0003	I	000047	NSF	0010		000063	NSFS

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0010		000044	NSFST	0003		000050	NSFT	0003	I	000056	NSTR	0003		000100	NSUBR	0003		000101	NV
0003		000102	NVT	0006		000025	PGMIN	0006		000026	PLMIN	0017	R	000000	PSAT	0000	R	000003	QEVAP
0000	R	000026	QIN	0000	R	000002	QMOTOR	0004	R	000001	R	0007		000154	RHO	0010	R	000072	RHOA
0010	R	000073	RHOB	0000	R	000026	RHOOB	0007		000153	RHOO	0006		000027	START	0006	L	000030	STEADY
0000	L	000000	STEDDY	0000	R	000025	SUB	0000	R	000023	SUBEVA	0000	R	000020	SUMG	0006	R	000031	TIME
0006		000032	TIMEMX	0006		000033	TMAX	0006		000034	TMIN	0000	R	000012	UFLOW	0005		000000	V
0007		000320	VISC	0010		000074	VISCA	0010		000075	VISCB	0007		000317	VISCO	0007		000463	VISGAS
0007		001001	VISLIQ	0000	R	000014	WLCOND	0007		000465	WTM	0010		000076	WTMA	0006		000035	WTMAX
0010		000077	WTMB	0007		000630	WTMCON	0007		000631	WTMDIL	0007		000632	WTMTC	0007		000464	WTMO
0007		000634	XK	0010		000100	XKA	0010		000101	XKB	0007		000777	XKGAS	0007		001000	XKLIQ
0007		000633	XKO	0003		000103	Y												

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00101      1*            SUBROUTINE WASTEC                                                    WASTE001
00103      2*            COMMON /COMP/ DS(15),N,NAI,NBI,NC,NCAB,NCFL,NEXT,NEXV,NK,            WASTE002
00103      3*           1 NKEX,NKS,NKT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),           WASTE003
00103      4*           2 NSTR(18),NSUBR,NV,NVT,Y(12)                                        WASTE004
00104      5*            COMMON /RARRAY/  IMAXR,R(1)                                          WASTE005
00105      6*            COMMON /KANDV/ K                                                     WASTE006
00106      7*            COMMON /MISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,        WASTE007
00106      8*           1  LPSUM(5),MAXCI,MAXLP,MAXSLP,MAXSSI,NCOMPS,NEWDT,NLAST,NPASPD,      WASTE008
00106      9*           2  MINSSI,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX        WASTE009
00107     10*            COMMON /PROPTY/ CPO,CP(99),CPCONL,CPCONV,CPCO2,CPDIL,CPOXY,CPTC,     WASTE010
00107     11*           1  GAMGAS,RHOO,RHO(99),VISCO,VISC(99),VISGAS,WTMO,WTM(99),WTMCON,      WASTE011
00107     12*           2  WTMDIL,WTMTC,XKO,XK(99),XKGAS,XKLIQ,VISLIQ                         WASTE012
00110     13*            COMMON /SOURCE/  A(19),B(19),CPA,CPB,IAI,IBI,NA,NB,NPFS,NPFST(6),    WASTE013
00110     14*           1 NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,WTMA,WTMB,XKA,XKB              WASTE014
00111     15*            COMMON /MAXRI/ MAXR                                                  WASTE015
00112     16*            DIMENSION V(1),K(1)                                                  WASTE016
00113     17*            EQUIVALENCE (V,K)                                                    WASTE017
00114     18*            LOGICAL STEADY,STEDDY                                                WASTE018
                                                                                              WASTE019
00114     19*       C        THIS SUBROUTINE SIMULATES STEADY STATE AND TRANSIENT PERFORMANC   WASTE020
00114     20*       C        OF A URINE/FECAL WASTE COLLECTOR (DRY-JOHN AND/OR URINAL).        WASTE021
00114     21*       C        THE FOLLOWING USAGE PHASES MAY BE SELECTED,                       WASTE022
00114     22*       C           PHASE 0 - UNIT OFF                                             WASTE023
00114     23*       C           PHASE 1 - URINE COLLECTION                                     WASTE024
00114     24*       C           PHASE 2 - FECAL COLLECTION                                     WASTE025
00114     25*       C           PHASE 3 - COMBINED URINE/FECAL COLLECTION                      WASTE026
00114     26*       C        COMMODE CONTENTS MAY BE UNDER VACUUM IF REQUESTED DURING          WASTE027
00114     27*       C        PHASES 0 AND 1.  VACUUM PUMP-DOWN IS INITIATED                    WASTE028
00114     28*       C        AUTOMATICALLY (TRANSIENT ONLY) TO BEGIN VACUUM DRYING.            WASTE029
00114     29*       C                                                                          WASTE030
00114     30*                                                                                  WASTE031
00115     31*            STEDDY=STEADY                                                        WASTE032
00116     32*            IF (NSTR(16) .EQ. 1) STEDDY=.TRUE.                                   WASTE033
00116     33*       C                                                                          WASTE034
00116     34*       C        INITIALIZE WASTEC DATA                                            WASTE035
00116     35*       C                                                                          WASTE036
00120     36*            IF (NPASS .GT. 0) GO TO 5                                            WASTE037
00122     37*            IF (ABS(R(51)) .LT. 1.E-9) R(51)=60.                                 WASTE038
00124     38*            IF (R(54) .LT. .0001) R(54)=70.                                      WASTE039
00126     39*            IF (R(55) .LT. .0001) R(55)=2.                                       WASTE040
00130     40*            IF (R(57) .LT. .0001) R(57)=70.                                      WASTE041
00132     41*            IF (R(58) .LT. .0001) R(58)=.8                                       WASTE042
00134     42*            IF (R(60) .LT. .0001) R(60)=70.                                      WASTE043
00136     43*            IF (R(61) .LT. .0001) R(61)=1.
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      IF (R(63) .LT. .0001) R(63)=70.
      IF (R(64) .LT. .0001) R(64)=2.5
      IF (R(67) .LT. .0001) R(67)=20.
      IF (R(69) .LT. .0001) R(69)=108.
      IF (R(74) .LT. .0001) R(74)=1.0
      IF (R(75) .LT. .0001) R(75)=3.
      IF (R(77) .LT. .0001) R(77)=1.5
      IF (R(78) .LT. .0001) R(78)=.15
      IF (R(79).LT. .1) R(79)=97.
       IF (STEADY) GO TO 5
      K(NKT+1)=0
      K(NKT+2)=-1
      IF (R(80) .LT. .0001) R(80)=3.
      IF (R(81) .LT. .0001) R(81)=1.2
      IF (R(83) .LT. .0001) R(83)=.6
      IF (R(85) .LT. .0001) R(85)=.5
      IF (R(86) .LT. .0001) R(86)=.3
      IF (R(87) .LT. .0001) R(87)=.75
      IF (R(88) .LT. .0001) R(88)=.25
      IF (R(91) .LT. .0001) R(91)=2.5
      R(93)=TIME
      IF (NSTR(1).EQ.0 .AND. R(66).LT. 1.2) K(NKT+2)=0
      IF (R(89)+R(90) .LT. 1.E-9) R(89)=.08*R(91)
      IF (R(51) .LT. 32.0) GO TO 4
      R(89)=R(89)+R(90)
      R(90)=0.
      GO TO 5
    4 R(90)=R(89)+R(90)
      R(89)=0.
    5 LMAX=4+5* MAX0(NPF,NSF)
      IF (NSTR(17).NE.0) WRITE (6,3) N
    3 FORMAT (///'  COMPONENT NO.', I5, '  CHECKOUT OF WASTEC'/)
      QMOTOR=0.
      QEVAP=0.
      NPHASE=IFIX(R(66)+.2)
      CPBB=CPB
      RHOBB=RHOB
       IF (STEADY) GO TO 7
      IF (NPHASE .EQ. K(NKT+1)) GO TO 6
      IF (NPHASE.EQ.1 .OR. NPHASE.EQ.3) R(82)=0.
C
C         PERFORM MASS BALANCE FOR EACH CYCLE PHASE
C
    6 IF (NPHASE.LE.4 .AND. A(1).GT. 1.E-6).R(99)=RHOA
    7 DO 8 L=1,LMAX
      R(L)=A(L)
      R(L+19)=B(L)
      IF (.NOT.STEADY .AND.A(1).GT.1.E-6 .AND.L.LE.4+5*NPF)R(99+L)=A(L)
      IF (NSTR(1).EQ.0 .AND. NPHASE.LE.1) R(L)=0.
    8 CONTINUE
      R(3)=A(4)
      R(22)=B(4
      DTYME=DTIME/3600.
      IF (.NOT.STEDDY) CAP=R(85)+R(89)+R(90)+.46+R(91)*R(88)
      IF (NPHASE.EQ.1 .OR. NPHASE.EQ.3) GO TO 10
      IF (NPHASE.EQ.2) GO TO 20
      GO TO 50
C
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ORIGINAL PAGE IS
OF POOR QUALITY

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00271  C              URINE COLLECTOR OPERATION
00271  C
00272       10 UFLOW=R(69)
00273          IF (STEDDY) GO TO 16
00275          IF (R(82)+UFLOW*DTYME .GT. R(83)+1.E-4) UFLOW=(R(83)-R(82))/DTYME
00277          IF (UFLOW.LT.1.E-4) UFLOW=0.
00301       14 R(82)=R(82)+UFLOW*DTYME
00302       16 R(20)=R(20)+UFLOW
00303          R(26)=R(26)+UFLOW
00304          IF (UFLOW+B(7) .LT. 1.E-4) GO TO 18
00306          IF (B(1) .GT. .001) GO TO 17
00310          R(21)=R(79)
00311          GO TO 18
00312       17 HMIX=B(5)*B(8)*B(2) + B(6)*HG(B(2)) +B(7)*HF(B(2))+UFLOW*HF(R(79))
00313          CALL HBALNC(HMIX,R(20),NSTR,NCFL,WLCOND)
00314          CALL PROP(R(20),NPF,NPFT,CPB, DUM,RHOB,DUM,DUM)
00315       18 IF (NPHASE.NE.3) GO TO 50
00315  C
00315  C              FECAL COLLECTOR OPERATION
00315  C
00317       20 QMOTOR=3.413*R(67)
00320          IF (STEADY) GO TO 50
00322          R(93)=TIME
00323          K(NKT+2)=-1
00324          IF (STEDDY .OR. NPHASE.EQ.K(NKT+1)) GO TO 50
00326          R(51)=(CAP*R(51)+R(86)*R(79)*(R(87)+(1.-R(87))*R(88)))
00326         . / (CAP+R(86)*(R(87)+(1.-R(87))*R(88)))
00327          R(91)=R(91)+R(86)*R(88)*(1.-R(87))
00330          R(89)=R(89)+R(86)*R(87)
00331          CAP=CAP+R(86)*(R(87)+(1.-R(87))*R(88))
00332       50 IF (NEWDT.EQ. -1) RETURN
00334          CALL QSURR
00335          LLL=0
00336          LPASS=1
00337          IF (STEDDY) GO TO 1000
00337  C         DETERMINE TRANSIENT COMPUTING TIME INCREMENT DTH  (HOURS)
00341          SUMG=R(52)
00342          IF (A(1).GT. .001) SUMG=SUMG+(A(1)*CPA*R(77))/(A(1)*CPA+R(77))
00344          IF (B(1).GT. .001) SUMG=SUMG+(B(1)*CPB*R(78))/(B(1)*CPB+R(78))
00346          IF (SUMG.LT. 1.E-15) SUMG=1.E-15
00350          LPASS=IFIX(DTIME/AMIN1(DTIME,.4*CAP/SUMG*3600.)+.99)
00351          DTH=DTIME/3600./FLOAT(LPASS)
00352     1000 LLL=LLL+1
00352  C
00352  C         CHECK FOR VACUUM DRYING SELECTION
00352  C
00353          IF (NPHASE.EQ.2 .OR. NPHASE.EQ.3) GO TO 200
00355          IF (NSTR(1).EQ.1) GO TO 200
00357          IF (STEDDY .OR. K(NKT+2).EQ.0) GO TO 80
00357  C         VACUUM PUMP-DOWN
00361          IF (K(NKT+2) .LT. 0) R(84)=R(81)*R(99)
00363          K(NKT+2)=5
00364          R(2)=R(51)
00365          DTMIN=(TIME-DTIME*FLOAT(LPASS-LLL)/FLOAT(LPASS)-R(93))/60.
00366          IF (DTMIN.GE.R(80)) GO TO 80
00370          R(4)=R(103)-DTMIN/R(80) * (R(103)-PSAT(R(51)))
00371          R(3)=R(4)
00372          R(1)=R(84)/R(80)*60.
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00373   160*          72 DO 74 L=5,LMAX                                                    WASTE160
00376   161*             IF (L.EQ.8 .OR. L.EQ.9) GO TO 74                                  WASTE161
00400   162*             R(L)=R(1)*R(99+L)/R(100)                                          WASTE162
00401   163*          74 CONTINUE                                                          WASTE163
00403   164*             R(8)=R(107)                                                       WASTE164
00404   165*             R(9)=R(108)                                                       WASTE165
00405   166*             GO TO 200                                                         WASTE166
00405   167*       C        VACUUM DRY                                                    WASTE167
00406   168*          80 IF (.NOT.STEADY) K(NKT+2)=0                                       WASTE168
00410   169*             SUBEVA=PSAT(R(51)) *R(75)*R(74)/SQRT(R(51)+460.)                  WASTE169
00411   170*             R(76)=SUBEVA                                                      WASTE170
00412   171*             IF (.NOT.STEDDY) GO TO 82                                         WASTE171
00414   172*             R(6)=SUBEVA                                                       WASTE172
00415   173*             QEVAP=SUBEVA*1042.                                                WASTE173
00416   174*             IF (R(51) .LT. 32.0) QEVAP=SUBEVA*1225.                           WASTE174
00420   175*             GO TO 86                                                          WASTE175
00421   176*          82 DUM=R(89)                                                         WASTE176
00422   177*             DUM2=R(90)                                                        WASTE177
00423   178*             IF (R(89).LT. .0001) GO TO 84                                     WASTE178
00425   179*             R(89)=AMAX1(0.,(R(89)-SUBEVA*DTH))                                WASTE179
00426   180*             SUB=SUBEVA-(DUM-R(89))/DTH                                        WASTE180
00427   181*          84 IF (R(90).GT. .0001) R(90)=AMAX1(0.,(R(90)-SUB*DTH))              WASTE181
00431   182*             QEVAP=(DUM-R(89))*1042.+(DUM2-R(90))*1225.                        WASTE182
00432   183*             QEVAP=QEVAP/DTH                                                   WASTE183
00433   184*             R(6)=(DUM+DUM2-R(89)-R(90))/DTH                                   WASTE184
00434   185*          86 R(1)=R(6)                                                         WASTE185
00435   186*             R(4)=PSAT(R(51))                                                  WASTE186
00436   187*             R(3)=R(4)                                                         WASTE187
00437   188*             R(2)=R(51)                                                        WASTE188
00437   189*       C                                                                      WASTE189
00437   190*       C        PERFORM THERMAL BALANCE                                       WASTE190
00437   191*       C                                                                      WASTE191
00440   192*         200 L=0                                                            WASTE192
00441   193*         210 L=L+1                                                          WASTE193
00442   194*             CALL QSURR                                                     WASTE194
00443   195*             QIN=QMOTOR-QEVAP-R(53)                                         WASTE195
00444   196*             IF (A(1).GT..001) QIN=QIN+A(1)*CPA*R(77)/(R(1)*CPA+R(77))*(A(2)-R(WASTE196
                       * 51))                                                         WASTE197
00446   198*             IF (B(1).GT..001)QIN=QIN+ B(1)*CPB*R(78)/(R(20)*CPB+R(78))*(B(2)- WASTE198
                       * R(51))                                                       WASTE199
00450   200*             IF (.NOT.STEDDY) GO TO 230                                     WASTE200
00452   201*             DUM=R(51)                                                      WASTE201
00453   202*             R(51)=R(51)+QIN*.5/R(52)                                       WASTE202
00454   203*             IF (ABS(DUM-R(51)).GT..05 .AND. L.LT.25) GO TO 210             WASTE203
00456   204*             GO TO 300                                                      WASTE204
00457   205*         230 IF (QIN.LT.3. .AND. R(89).LT.1.E-4) GO TO 250                  WASTE205
00461   206*             IF (QIN.GT.0. .AND. R(90).LT.1.E-4) GO TO 250                  WASTE206
00463   207*             IF (QIN .LT. 0.) GO TO 240                                     WASTE207
00463   208*       C        ALLOW FOR COLLECTOR ICE TO MELT                             WASTE208
00465   209*             IF (R(51) .LT. 32.) GO TO 250                                  WASTE209
00467   210*             DUM=AMIN1(R(90),QIN/144. *DTH)                                 WASTE210
00470   211*             R(90)=R(90)-DUM                                                WASTE211
00471   212*             R(89)=R(89)+DUM                                                WASTE212
00472   213*             QIN=-DUM*144./DTH                                              WASTE213
00473   214*             GO TO 250                                                      WASTE214
00473   215*       C        ALLOW FOR COLLECTOR LIQUID WATER TO FREEZE                  WASTE215
00474   216*         240 IF (R(51) .GT. 32.) GO TO 250                                  WASTE216
00476   217*             DUM=AMIN1(R(89), -QIN/144. *DTH)                               WASTE217
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00477    218*          R(89)=R(89)+DUM                                                    WASTE218
00500    219*          R(90)=R(90)+DUM                                                    WASTE219
00501    220*          QIN= DUM*144./DT                                                   WASTE220
00502    221*     250  R(51)=R(51)+QIN*0.4/CAP                                           WASTE221
00503    222*     300  IF (.NOT.STEADY) K(NKT+1)=NPHASE                                  WASTE222
00505    223*          IF (LLL.LT.LPASS) GO TO 1000                                       WASTE223
00507    224*          R(65)=QMOTOR                                                       WASTE224
00510    225*          IF (A(1).LT. 1.E-20) GO TO 320                                     WASTE225
00512    226*          R(2)=(R(1)*CPA*R(2)+R(77)*R(51))/(R(1)*CPA+R(77))                  WASTE226
00513    227*     320  IF (B(1).LT. 1.E-20) GO TO 350                                     WASTE227
00515    228*          R(21)=(R(20)*CPB*R(21)+R(78)*R(51))/(R(20)*CPB+R(78))              WASTE228
00516    229*     350  CPB=CPBB                                                          WASTE229
00517    230*          RHOB=RHOBB                                                         WASTE230
00520    231*          R(76)=R(6)-A(6)                                                    WASTE231
00521    232*          IF (NSTR(17).EQ.0) RETURN                                          WASTE232
00523    233*          WRITE (6,901) NPHASE,LPASS,QMOTOR,SUBEVA,SUB,UFLOW,SUMG,DTH        WASTE233
00523    234*         * ,CAP,QEVAP,QIN                                                    WASTE234
00540    235*     901  FORMAT (//' NPHASE=',I4,' LPASS=',I6,' QMOTOR=',G12.5,           WASTE235
00540    236*         * ' SUBEVA=',G12.5,' SUB=',G12.5,' UFLOW=',G12.5,' SUMG=',        WASTE236
00540    237*         * G12.5/' DTH=',G12.5,' CAP=',G12.5,' QEVAP=',G12.5,              WASTE237
00540    238*         * ' QIN=',G12.5/)                                                  WASTE238
00541    239*          RETURN                                                             WASTE239
00542    240*          END                                                                WASTE240

      END OF COMPILATION:       NO  DIAGNOSTICS.
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APPENDIX B

INPUT G-189A DATA FOR SHUTTLE ORBITER MODEL-BASIC UNMODIFIED CASE

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BASIC  CASE NO.    1      G-189A BASIC SHUTTLE SIMULATION  -  UNMODIFIED

THE EC/LS MODEL HAS  117 COMPONENTS, THE LAST OF WHICH TO BE SOLVED IS NO.   76

THE MODEL IS    TRANSIENT, WITHOUTPRESSURE DROP DATA ALLOCATION,
 $CASE1
 DTIME    =     .10000000E+02,
 XCHOUT   =              +0,
 KPRNT    =              +0,
 KPRUN    =              +0,
 KPTINV   =              +1,          +5,          +6000,          +0,
 KPUNCH   =              +0,
 KRUN     =              +1,
 MAXCI    =              +0,
 MAXLP    =              +0,
 MAXSLP   =              +4,
 MAXSSI   =             +15,
 MINSSI   =              +4,
 NPASPD   =              +0,
 PGMIN    =     .00000000E+00,
 PLMIN    =     .00000000E+00,
 START    =     .18420000E+06,
 TIMEMX   =     .52980100E+06,
 TMAX     =     .25000000E+03,
 TMIN     =    -.47100000E+03,
 WTMAX    =     .10000000E+07,
 IOUTIS   =              +0,
 IPONLY   =              +0,
 TPLOTS   =     .00000000E+00,    .00000000E+00,    .00000000E+00,
    .00000000E+00,    .00000000E+00,
 TPLOTE   =     .00000000E+00,    .00000000E+00,    .00000000E+00,
    .00000000E+00,    .00000000E+00,
 KSTEDY   =              +1,
 $END
 $PROP1
 CP       =     .10000000E+01,    .24800000E+00,    .27000000E+00,
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    CPCONY   =    .44000000E+00,
    CPCO2    =    .20000000E+00,
    CPOIL    =    .25000000E+00,
    CPOXY    =    .22000000E+00,
    CPTC     =    .20000000E+00,
    GAMGAS   =    .14000000E+01,
    RHO      =    .62400000E+02,    .84800000E+02,    .11400000E+03,
      .51800000E+02,    .68400000E+02,    .00000000E+00,    .00000000E+00,
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G-189A BASIC SHUTTLE SIMULATION - UNMODIFIED

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101050 ID**  1  50 FLUID TYPE CODES --
101051 ID**  1  51       1 = WATER
101052 ID**  1  52       2 = FREON 21
101053 ID**  1  53       3 = FC-40
101054 ID**  1  54       4 = HYDRAULIC FLUID
101055 ID**  1  55       5 = GSE GLYCOL/WATER
101099 ID**  1  99
101100 ID**  1 100 RISD = ATMOSPHERIC REVITALIZATION REQUIREMENTS - SRR CONFG- 7/23/73
101101 ID**  1 101    1. CABIN AIR TEMPS,  65-80 F DB,  39-61 F DP
101102 ID**  1 102         A. TMAX=70 F DB, 61 F DP FOR 4 MEN AT MAX METABOLIC RATES
101103 ID**  1 103            AND MAX HEAT LOADS  (EXCEPT FOR REENTRY PHASE)
101104 ID**  1 104         B. TMAX=80 F DB, 61 F DP FOR 10 MEN AT NOMINAL METABOLIC
101105 ID**  1 105            RATES AND MAX HEAT LOADS (EXCEPT FOR REENTRY PHASE)
101106 ID**  1 106         C. TMAX=90F DB DURING ENTRY, TOUCHDOWN, AND TD+15 MIN.
101107 ID**  1 107         D. TEMP SELECTABLE WITHIN + OR - 2 F DURING ORBITAL
101108 ID**  1 108            PHASES WITH 4 MEN
101120 ID**  1 120    2. CABIN GAS PRESSURES
101121 ID**  1 121         A. 14.7 PSIA +-2  TOTAL PRESSURE  (13.9 PSIA DURING AIRL)
101122 ID**  1 122               MAKEUP GAS= 7 LB/DAY FOR STURTURE AND METABOLIC
101124 ID**  1 124         B. OXYGEN PRESSURE = 3.2 PSIA +-0.25(MINIMUM OF 2.75 PSIA
101125 ID**  1 125            DURING REPRESSURIZATION)
101126 ID**  1 126         C. CO2 PRESSURE = 0-7.6 MM HG  (5.0 MM HG NOMINAL)
101130 ID**  1 130    3. COLD PLATE EQUIPMENT TEMP =  35-120 F
101140 ID**  1 140    4. AIR COOLED AVIONICS HX GAS TEMP = 100 F IN OR 130 F OUT
101150 ID**  1 150    5. PAYLOAD SUPPORT
101151 ID**  1 151         A.CABIN
101152 ID**  1 152               1000 BTU/HR FROM PAYLOAD CONSOLE
101153 ID**  1 153               METABOLIC HEAT AND CO2 FOR 4 MEN
101154 ID**  1 154         B.PAYLOAD MODULE
101155 ID**  1 155               48 CFM NOMINAL AT 50 F NOMINAL
101156 ID**  1 156               MAINTAIN HABITABLE PRESSURE AND GAS COMPOSITION
101160 ID**  1 160    6.STRUCTURAL HEAT LOSS/GAIN
101161 ID**  1 161         MAX GAIN = 1700 BTU/HR DURING NON-ORBIT PHASES
101162 ID**  1 162                  = 6500 BTU/HR DURING ENTRY TO TD + 15 MIN
101163 ID**  1 163         MAX LOSS =-4600 BTU/HR DURING ORBITAL PHASES
101170 ID**  1 170    7. AVIONICS BAY
101171 ID**  1 171         PRESSURE = CABIN PRESSURE
101180 ID**  1 180    8. LIOH CAPABILITY
101181 ID**  1 181         10 MEN AT 2.11 LB CO2/DAY  OR
101182 ID**  1 182         4 MEN AT 2.58 LB CO2/DAY  TO MAINTAIN PPCO2 LIMITS
101190 ID**  1 190    9. CABIN HX GAS SUPPLY = 50 F DB, 50 F DP
101200 ID**  1 200   10. CABIN WALL TEMP .GT. CABIN GAS TEMP FOR ALL PRESSURIZED COMP
101210 ID**  1 210   11. ON-ORBIT STURTURAL HEAT LOSS SHALL BE ACCOMODATED FOR BY
101211 ID**  1 211         A 1.0 KW HEATER
101299 ID**  1 299
101300 ID**  1 300 RISD = ACTIVE THERMAL CONTROL REQUIREMENTS- SRR CONFG-  7/23/73
101310 ID**  1 310    1. RADIATORS  (12 MODULAR STAGNATION TYPE PANELS, 8 UP, 4 DOWN)
101311 ID**  1 311         QREJECT = 70000-75000 BTU/HR FOR ANY ATTITUDE  FROM
101312 ID**  1 312         100000 FT. TO  100-270 NAUTICAL MILE ORBIT
101320 ID**  1 320    2. HEAT SINKS
101321 ID**  1 321         AMMONIA BOILER  20000 FT TO TOUCHDOWN +17 MIN (40+-5F)
101322 ID**  1 322         NONE - ASCENT TO 100000 FT, REENTRY 100000-20000 FT
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101330  ID**  1 330     3. PAYLOAD HEAT LOAD = 21500 BTU/HR MAX
101340  ID**  1 340     4. O2 HEATING = 0-1000 BTU/HR  (0-40 F O2 OUT)
101350  ID**  1 350     5. GSE HX = 85000 BTU/HR MAX
101360  ID**  1 360     6. HYDRAULICS HEATING = 0-15000 BTU/HR  (.GT.40 F HYDRAULIC FL)
101370  ID**  1 370     7. SUBLIMATOR OPERATION
101371  ID**  1 371          ASCENT TO 100000 FT, ON-ORBIT DOORS CLOSED, AND DURING
101372  ID**  1 372          RENTRY FROM DOOR CLOSURE TO 100000 FT.
101380  ID**  1 380     8. INTERCHANGER LOAD = 40000 BTU/HR AT 40 F FREON SUPPLY
101399  ID**  1 399
101400  ID**  1 400 HSD-FREON COOLANT LOOP PROPOSAL   5-29-73
101410  ID**  1 410     1. 0.75 IN OD AL TUBES, 0.028 IN WALL
101420  ID**  1 420     2. FREON PUMP DELTA P = 41 PSI AT 2200 LB/HR
101430  ID**  1 430     3. HX'S ARE STAINLESS STELL WITH NICKEL FINS EXCEPT FOR TYPE-A
101431  ID**  1 431        FUEL CELL HX WHICH IS ALUMINUM
101997  ID**  1 997
101998  ID**  1 998
101999  ID**  1 999 SHUTTLE CREW METABOLIC SIMULATION                                2    2
102000  KBAS  1  0  3          80 2
103000  NSTR  1  00                  11    SOLVE FOR TYP CREWMAN, SS MODEL
104016  KARY  1  16                  NUMBER OF CREWMEN - CALC IN GPOLY
104017  KARY  1  17       990        AVG. MAN, 500 BTU/HR METABOLIC RATE, CLO=.99
105071  VARY  1  71 25.0             AVG. CABIN GAS VELOCITY  (FT/MIN)              PRR
105072  VARY  1  72 300.             MAX HEAT STORAGE/MAN (BTU)                     PRR

201000  ID**  2   0 SHUTTLE MAIN CABIN                                              RDD/SRR
201001  ID**  2   1 WALL TEMPERATURES,GT. CABIN GAS TEMPERATURE                     RDD/SRR
201002  ID**  2   2                 ,LT, 113 DEG F  CREW ACESSIBLE
201003  ID**  2   3                 ,LT, 120 DEG F  CREW NON-ACESSIBLE               83    2
202000  KBAS  2   0  1 22         1 2       CARRY ENTRAINED H2O
203000  NSTR  2  0001000010          CABIN TEMP  (F)                                RDD/SRR
205002  VARY  2   2 72.5             CABIN PRESSURE  (PSIA)                         RDD/SRR
205003  VARY  2   3 14.7          4  H2O VAPOR FLOW  (LB/HR)
205006  VARY  2   6 10.96            OXYGEN FLOW  (LB/HR)
205010  VARY  2  10 349.9            NITROGEN FLOW  (LB/HR)
205011  VARY  2  11 1074.5           CO2 FLOW  (LB/HR)
205012  VARY  2  12 14.54            CABIN HEAT LOAD - CALC IN GPOLY
205066  VARY  2  66                  CABIN GAS DESIGN TEMP  (F)   (4 MEN)           RDD/SRR
205087  VARY  2  87 72.5             CABIN GAS DESIGN TEMP TOL (F)  (4 MEN)         RDD/SRR
205088  VARY  2  88 7.5              DESIGN TOTAL PRESSURE (PSIA)                   RDD/SRR
205090  VARY  2  90 14.7             DESIGN TOTAL PRESSURE TOL  (PSIA)              RDD/SRR
205091  VARY  2  91 0.2              DESIGN OXYGEN PRESSURE  (PSIA)                 RDD/SRR
205092  VARY  2  92 3.2              DESIGN OXYGEN PRESSURE TOL (PSIA)              RDD/SRR
205093  VARY  2  93 0.125            DESIGN DEW POINT (F)                           RDD/SRR
205096  VARY  2  96 50.0             DESIGN DEW POINT TOL (F)                       RDD/SRR
205097  VARY  2  97 11.0             MAX ALLOWABLE CO2 PRESSURE  (MM HG)            RDD/SRR
205099  VARY  2  99 7.6              MAX ALLOWABLE TRACE CONTAMINANT LEVEL (PPM)
205101  VARY  2 101 250.             TOTAL OUTBOARD LEAKAGE (LB/HR), 6 LB/DAY       RDD/SRR
205122  VARY  2 122 0.25             N-C ADDITION RATE  (LB/HR)
205127  VARY  2 127                  COND. VAPOR ADDITION RATE (LB/HR)
205128  VARY  2 128                  COND ENTRAINED LIQUID ADDITION RATE (LB/HR)
205129  VARY  2 129                  SPECIFIC HEAT OF N-C ADDED  (BTU/LB-F)
205134  VARY  2 134 0.2               CABIN FREE VOLUME (FT3)
205139  VARY  2 139 1773.

301000  ID**  3   0 DUMMY CABIN TO SIMULATE BULK MASS TRANSFER BETWEEN CABINS
302000  KBAS  3   0  1 27        1 2               81 2             83
303000  NSTR  3   0  1111                CARRY ENTRAINED H2O SPECIFY MASS ADDITION
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305087  VARY   3  87 72.5        CABIN GAS DESIGN TEMP  (F)    (4 MEN)     RDD/SRR
305088  VARY   3  88 7.5         CABIN GAS DESIGN TEMP TOL (F)  (4 MEN)    RDD/SRR
305090  VARY   3  90 14.7        DESIGN TOTAL PRESSURE (PSIA)              RDD/SRR
305091  VARY   3  91 0.2         DESIGN TOTAL PRESSURE TOL  (PSIA)         RDD/SRR
305092  VARY   3  92 3.2         DESIGN OXYGEN PRESSURE  (PSIA)            RDD/SRR
305093  VARY   3  93 0.125       DESIGN OXYGEN PRESSURE TOL (PSIA)         RDD/SRR
305096  VARY   3  96 50.0        DESIGN DEW POINT (F)                      RDD/SRR
305097  VARY   3  97 11.0        DESIGN DEW POINT TOL (F)                  RDD/SRR
305099  VARY   3  99 7.6         MAX ALLOWABLE CO2 PRESSURE  (MM HG)       RDD/SRR
305101  VARY   3 101 250.        MAX ALLOWABLE TRACE CONTAMINANT LEVEL (PPM)

801000  ID**   8   0 MAIN CABIN FANS (3)                               13   2
802000  KBAS   8   0 23            84 2     INPUT HEAT ADDITION DUE TO FAN + CFM
803000  NSTR   8    01
805076  VARY   8  76 320.           FAN VOLUMETRIC FLOW (CFM)
805091  VARY   8  91 582.5          FAN HEAT ADDITION (WATTS)

1301000  ID**  13   0 SPLIT - (LIOH BEDS BYPASS)                       17   2
1302000  KBAS  13   0 10            8 2        2
1303000  NSTR  13    00                    INPUT UNIV SPLIT RATIO
1305065  VARY  13  65 0.792         LIOH BEDS BYPASS GAS FLOW RATIO

1701000  ID**  17   0 LIOH BEDS                                        85   2
1702000  KBAS  17   0 63          13 2
1703000  NSTR  17    01              1    REMOVE ALL TRACE CONTAMINANTS - SS SOLUTION
1705066  VARY  17  66 0.95          CO2 REMOVAL EFFICIENCY CONSTANT - C1
1705067  VARY  17  67 0.0           CO2 REMOVAL EFFICIENCY CONSTANT - C2
1705068  VARY  17  68 875.0         HEAT OF REACTION FOR CO2  (BTU/LB CO2)

2101000  ID**  21   0 CABIN AIR DUCT HEATER                            23   2
2102000  KBAS  21   0 97  1        -86 2      NSTR(1)=2-SPECIFY-R=-31-CALC R(2)
2103000  NSTR  21    02
2105065  VARY  21  65 0.0           CALC IN GPOLY1
2105067  VARY  21  67 12.             MISSION PHASE FOR PLOTS - STORE IN GPOLY1

2201000  ID**  22   0 MAIN CABIN CONDENSING HX                         21   2
2202000  KBAS  22   0  4           86 2           -61 0   1
2203000  NSTR  22    0200000100        10   COUNTERFLOW,REMOVE ALL COND H2O, SS MODEL
2205066  VARY  22  66               CALC UA IN GPOLY1

2301000  ID**  23   0 GASMIX - (CABIN TEMP CONTROL VALVE BYPASS)       80   2
2302000  KBAS  23   0  6          22 2             -21

2401000  ID**  24   0 AVIONICS BAY 1 - AIR COOLED AVIONICS COMPARTMENT 32   2
2402000  KBAS  24   0  1 20        29 2
2403000  NSTR  24    00010             1    0 RESETS, CARRY ENTRAINED WATER, SS MODEL
2405002  VARY  24   2 85.0          AVIONICS BAY 1 - TEMP (F)
2405003  VARY  24   3 14.7        4 AVIONICS BAY 1 - PRES (PSIA)               RDD/SRR
2405006  VARY  24   6 6.61          AVIONICS BAY 1 - COND VAPOR (LB/HR)
2405010  VARY  24  10 211.16        AVIONICS BAY 1 - O2 FLOW (LB/HR)
2405011  VARY  24  11 648.45        AVIONICS BAY 1 - N2 FLOW  (LB/HR)
2405012  VARY  24  12 8.78          AVIONICS BAY 1 - CO2 FLOW (LB/HR)
2405066  VARY  24  66               HEAT LOAD (BTU/HR) - CALC IN GPOLY
2405087  VARY  24  87 82.5          AVIONICS BAY 1 - DESIGN GAS TEMP (F)
2405088  VARY  24  88 47.5          AVIONICS BAY 1 - DESIGN GAS TEMP TOL (F)
2405090  VARY  24  90 14.7          AVIONICS BAY 1 - DESIGN TOTAL PRESS      (PSIA)
2405091  VARY  24  91 0.2           AVIONICS BAY 1 - DESIGN TOTAL PRESS TOL (PSIA)
2405092  VARY  24  92 3.2           AVIONICS BAY 1 - DESIGN O2 PRESS (PSIA)
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2405093 VARY 24  93 .125          AVIONICS BAY 1 - DESIGN O2 PRESS (TOL (PSIA)
2405096 VARY 24  96 50.0          AVIONICS BAY 1 - DESIGN DEW POINT TEMP (F)
2405097 VARY 24  97 11.0          AVIONICS BAY 1 - DESIGN DEW POINT TEMP TOL (F)
2405099 VARY 24  99 7.6           AVIONICS BAY 1 - MAX CO2 PRES (MM HG)
2405101 VARY 24 101 250.0         AVIONICS BAY 1 - MAX TRACE CONT LEVEL (PPM)
2405122 VARY 24 122 0.04167       AVIONICS BAY 1 - LEAKAGE (LB/HR) - 1 LB/DAY  RDD/SRR
2405139 VARY 24 139 106.           AV BAY 1 FREE VOLUME (FT3)

2601000 ID** 26  0 AVIONICS BAY 1 - FANS (2)                                  24   24
2602000 KBAS 26  0 23           24 2
2603000 NSTR 26  01                        INPUT HEAT ADDITION DUE TO FAN + CFM
2605076 VARY 26  76 215.            FAN VOLUMETRIC FLOW (CFM)
2605091 VARY 26  91 176.1          FAN HEAT ADDITION (WATTS)

2901000 ID** 29  0 AVIONICS BAY 1 - GAS/LIQ HX
2902000 KBAS 29  0  4           26 2                -50 0   1                 24   24
2903000 NSTR 29  02000001          1    COUNTERFLOW, SS MODEL
2905066 VARY 29  66 373.0         OVERALL UA  (BTU/HR-F)                          FE

3001000 ID** 30  0 AVIONICS BAY 2 - AIR COOLED AVIONICS COMPARTMENT
3002000 KBAS 30  0  1 20        35 2                                           38   30
3003000 NSTR 30  00010             1    0 RESETS, CARRY ENTRAINED WATER, SS MODEL
3005002 VARY 30   2 85.0          AVIONICS BAY 2 - TEMP (F)
3005003 VARY 30   3 14.7        4 AVIONICS BAY 2 - PRES (PSIA)                   RDD/SRR
3005006 VARY 30   6 6.61          AVIONICS BAY 2 - COND VAPOR (LB/HR)
3005010 VARY 30  10 211.2         AVIONICS BAY 2 - O2 FLOW (LB/HR)
3005011 VARY 30  11 698.45        AVIONICS BAY 2 - N2 FLOW  (LB/HR)
3005012 VARY 30  12 8.78          AVIONICS BAY 2 - CO2 FLOW (LB/HR)
3005066 VARY 30  66               HEAT LOAD (BTU/HR) - CALC IN GPOLY
3005087 VARY 30  87 82.5          AVIONICS BAY 2 - DESIGN GAS TEMP (F)
3005088 VARY 30  88 47.5          AVIONICS BAY 2 - DESIGN GAS TEMP TOL (F)
3005090 VARY 30  90 14.7          AVIONICS BAY 2 - DESIGN TOTAL PRESS      (PSIA)
3005091 VARY 30  91 0.2           AVIONICS BAY 2 - DESIGN TOTAL PRESS TOL.(PSIA)
3005092 VARY 30  92 3.2           AVIONICS BAY 2 - DESIGN O2 PRESS (PSIA)
3005093 VARY 30  93 .125          AVIONICS BAY 2 - DESIGN O2 PRESS (TOL (PSIA)
3005096 VARY 30  96 50.0          AVIONICS BAY 2 - DESIGN DEW POINT TEMP (F)
3005097 VARY 30  97 11.0          AVIONICS BAY 2 - DESIGN DEW POINT TEMP TOL (F)
3005099 VARY 30  99 7.6           AVIONICS BAY 2 - MAX CO2 PRES (MM HG)
3005101 VARY 30 101 250.0         AVIONICS BAY 2 - MAX TRACE CONT LEVEL (PPM)
3005122 VARY 30 122 0.04167       AVIONICS BAY 2 - LEAKAGE (LB/HR) - 1 LB/DAY  RDD/SRR
3005139 VARY 30 139 119.           AV BAY 2 FREE VOLUME (FT3)

3201000 ID** 32  0 AVIONICS BAY 2 - FANS (2)
3202000 KBAS 32  0 23           30 2                                           35   30
3203000 NSTR 32  01                        INPUT HEAT ADDITION DUE TO FAN + CFM
3205076 VARY 32  76 215.            FAN VOLUMETRIC FLOW (CFM)
3205091 VARY 32  91 176.1          FAN HEAT ADDITION (WATTS)

3301000 ID** 33  0 SPLIT - ARS I/C BYPASS CONTROL VALVE  (AV MIN TEMP CONTROL)
3302000 KBAS 33  0 10           53 0   1                    0   1               94    2
3303000 NSTR 33  0 1                       SPECIFY PRI FLOW IN GPOLY1,CALC SPLIT RATIO

3401000 ID** 34  0 LIQMIX - ARS I/C BYPASS / CABIN HX WATER FLOWS
3402000 KBAS 34  0  7          -33 0   1                   22                  43    2
3403000 NSTR 34  0                         SELECT MIN SOURCE PRESS

3501000 ID** 35  0 AVIONICS BAY 2 - GAS/LIQ HX
3502000 KBAS 35  0  4           32 2                -51 0   1                 30   30
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3503000  NSTR  35   02000001          1   COUNTERFLOW, SS MODEL
3505066  VARY  35  66 373.0          OVERALL UA  (BTU/HR-F)                          FE

3601000  ID**  36    0 AVIONICS BAY 3 - AIR COOLED AVIONICS COMPARTMENT
3602000  KBAS  36    0  1 20         41 2                                   54   36
3603000  NSTR  36    0  1             1   CARRY ENTRAINED H2O, CALC T(FURN), SS MODEL
3605002  VARY  36    2 85.0           AVIONICS BAY 3 - TEMP (F)
3605003  VARY  36    3 14.7         4 AVIONICS BAY 3 - PRES (PSIA)                  RDD/SRR
3605006  VARY  36    6 6.6            AVIONICS BAY 3 - COND VAPOR (LB/HR)
3605010  VARY  36   10 211.2          AVIONICS BAY 3 - O2 FLOW (LB/HR)
3605011  VARY  36   11 648.45         AVIONICS BAY 3 - N2 FLOW  (LB/HR)
3605012  VARY  36   12 8.78           AVIONICS BAY 3 - CO2 FLOW (LB/HR)
3605066  VARY  36   66                HEAT LOAD (BTU/HR) - CALC IN GPOLY
3605081  VARY  36   81 80.0           INITIAL TEMP (F) OF AV BAY ELEC STRUCTURE
3605083  VARY  36   83                AIR COOLED ELEC HA  (BTU/HR-F)  RI 2/74
3605087  VARY  36   87 82.5           AVIONICS BAY 3 - DESIGN GAS TEMP (F)
3605088  VARY  36   88 47.5           AVIONICS BAY 3 - DESIGN GAS TEMP TOL (F)
3605090  VARY  36   90 14.7           AVIONICS BAY 3 - DESIGN TOTAL PRESS      (PSIA)
3605091  VARY  36   91 0.2            AVIONICS BAY 3 - DESIGN TOTAL PRESS TOL.(PSIA)
3605092  VARY  36   92 3.2            AVIONICS BAY 3 - DESIGN O2 PRESS (PSIA)
3605093  VARY  36   93 .125           AVIONICS BAY 3 - DESIGN O2 PRESS (TOL (PSIA)
3605096  VARY  36   96 50.0           AVIONICS BAY 3 - DESIGN DEW POINT TEMP (F)
3605097  VARY  36   97 11.0           AVIONICS BAY 3 - DESIGN DEW POINT TEMP TOL (F)
3605099  VARY  36   99 7.6            AVIONICS BAY 3 - MAX CO2 PRES (MM HG)
3605101  VARY  36  101 250.0          AVIONICS BAY 3 - MAX TRACE CONT LEVEL (PPM)
3605122  VARY  36  122 0.04167        AVIONICS BAY 3 - LEAKAGE (LB/HR) - 1 LB/DAY  RDD/SRR
3605139  VARY  36  139 112.           AV BAY 3 FREE VOLUME (FT3)
3605142  VARY  36  142 39.56          AIR COOLED ELEC + STRUCTURE MCP (BTU/F)  RI 2/74

3801000  ID**  38    0 AVIONICS BAY 3 - FANS (2)
3802000  KBAS  38    0 23            36 2                                   41   36
3803000  NSTR  38   01                    INPUT HEAT ADDITION DUE TO FAN + CFM
3805076  VARY  38   76 215.           FAN VOLUMETRIC FLOW (CFM)
3805091  VARY  38   91 176.1          FAN HEAT ADDITION (WATTS)

3901000  ID**  39    0 WINDOW PANELS
3902000  KBAS  39    0 49            54     1                               47
3903000  NSTR  39   02                    INPUT HEAT LOAD
3905065  VARY  39   65                HEAT LOAD (BTU/HR) - CALC IN GPOLY

4001000  ID**  40    0 IMU - BAY 3 CIRCUIT
4002000  KBAS  40    0 49            48     1                               52
4003000  NSTR  40   02                    INPUT HEAT LOAD
4005065  VARY  40   65                HEAT LOAD (BTU/HR) - CALC IN GPOLY

4101000  ID**  41    0 AVIONICS BAY 3 - GAS/LIQ HX
4102000  KBAS  41    0  4            38 2            -52 0   1              36   36
4103000  NSTR  41   02000001          1   COUNTERFLOW, SS MODEL
4105066  VARY  41   66 373.0          OVERALL UA  (BTU/HR-F)                          FE

4201000  ID**  42    0 SPLIT - (IMU BAY 1 AND IMU BAY 2 CIRCUIT)
4202000  KBAS  42    0 10           -48     1                               44
4205065  VARY  42   65 .50            SPLIT RATIO TO IMU BAY 1 CIRCUIT

4301000  ID**  43    0 WATER LOOP PUMPS (2)
4302000  KBAS  43    0 22            34 0   1                               48
4303000  NSTR  43   00002                 INPUT HEAT ADDITION DUE TO PUMP
4305005  VARY  43   85                PUMP HEAT ADDITION (WATTS)  - CALC IN GPOLY
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4401000  ID**  44   0 IMU - BAY 2 CIRCUIT
4402000  KBAS  44   0 49            42      1                                         45
4403000  NSTR  44   02                          INPUT HEAT LOAD
4405065  VARY  44   65                   HEAT LOAD (BTU/HR) - CALC IN GPOLY

4501000  ID**  45   0 IMU - BAY 1 CIRCUIT
4502000  KBAS  45   0 49           -42      1                                         46
4503000  NSTR  45   02                          INPUT HEAT LOAD
4505065  VARY  45   65                   HEAT LOAD (BTU/HR) - CALC IN GPOLY

4601000  ID**  46   0 LIQMIX - (IMU BAY 1 AND IMU BAY 2 CIRCUITS)
4602000  KBAS  46   0  7            44      1              -45                         49

4701000  ID**  47   0 SIDE HATCH PANELS
4702000  KBAS  47   0 49           -29      1                                         53    2
4703000  NSTR  47   02                          INPUT HEAT LOAD
4705065  VARY  47   65                   HEAT LOAD (BTU/HR) - CALC IN GPOLY

4801000  ID**  48   0 SPLIT - (IMU BAY 3 CIRCUIT)
4802000  KBAS  48   0 10            43      1                   1                     40
4803000  NSTR  48   00                          INPUT UNIV SPLIT RATIO
4805065  VARY  48   65 0.66666667        SPLIT RATIO TO IMU BAY 1 AND 2 CIRCUITS

4901000  ID**  49   0 SPLIT - (AVIONICS COLDPLATES AV-1 AND AV-2)
4902000  KBAS  49   0 10            46      1                   1                     50
4903000  NSTR  49   00                          INPUT UNIV SPLIT RATIO
4905065  VARY  49   65 .50               SPLIT RATIO TO AVIONIC BAY 1 COLDPLATES

5001000  ID**  50   0 AVIONICS BAY 1 COLDPLATES, AV-1
5002000  KBAS  50   0  8           -49      1                                         51
5003000  NSTR  50   01                   1    TEST FLUID OUTLET TEMP .LT. R(69), SS MODEL
5005051  VARY  50   51 60.0              ELEC TEMP (F)
5005066  VARY  50   66                   ELEC HEAT DISP - CALC IN GPOLY    (WATTS)
5005067  VARY  50   67 1.0      E6       CP ELEC - CP CONTACT COND  (BTU/HR-F)
5005069  VARY  50   69 120.              MAX FREON OUTLET TEMP (F)

5101000  ID**  51   0 AVIONICS BAY 2 COLDPLATES, AV-2
5102000  KBAS  51   0  8            49      1                                         26
5103000  NSTR  51   01                   1    TEST FLUID OUTLET TEMP .LT. R(69), SS MODEL
5105051  VARY  51   51 60.0              ELEC TEMP (F)
5105066  VARY  51   66                   ELEC HEAT DISP - CALC IN GPOLY    (WATTS)
5105067  VARY  51   67 1.0      E6       CP ELEC - CP CONTACT COND  (BTU/HR-F)
5105069  VARY  51   69 120.              MAX FREON OUTLET TEMP (F)

5201000  ID**  52   0 AVIONICS BAY 3 COLDPLATES, AV-3
5202000  KBAS  52   0  8            40      1                                         42
5203000  NSTR  52   01                   1    TEST FLUID OUTLET TEMP .LT. R(69), SS MODEL
5205051  VARY  52   51 60.0              ELEC TEMP (F)
5205061  VARY  52   61 0.0               CP TO STRUCTURE COND.  (BTU/HR-F)  RI 2/74 MODEL
5205066  VARY  52   66                   ELEC HEAT DISP - CALC IN GPOLY    (WATTS)
5205067  VARY  52   67 1.0      E6       CP TO ELEC CONTACT COND.  (BTU/HR-F)
5205069  VARY  52   69 120.              MAX FREON OUTLET TEMP (F)
5205070  VARY  52   70 3.75              CP MCP  (BTU/F)   FLUID NOT INCLUDED   RI 2/74
5205071  VARY  52   71 38.05             ELECTRONICS MCP (BTU/F)   RI 2/74

5301000  ID**  53   0 LIQMIX - AVIONIC BAY HXS 1, 2, AND 3
5302000  KBAS  53   0  7            47 0    1              -39                         33
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5401000  ID**  54   0 LIQHIX - AVIONIC BAY HXS 2 AND 3
5402000  KBAS  54   0  7          -35     1               41                    59

5501000  ID**  55   0 WATER/FREON INTERCHANGER HX
5502000  KBAS  55   0  4          33 0    1              -94 0    2             56
5503000  NSTR  55   020002             1   COUNTERFLOW, LIQ-LIQ, SS MODEL
5505066  VARY  55  66 4021.9           OVERALL UA (BTU/HR-F) REF LEC 5/28/74

5601000  ID**  56   0 WATER SUBLIMATOR 1
5602000  KBAS  56   0 49  4       55      1                                     57
5603000  NSTR  56   00                       PASS TEMP AND FLOW
5605067  VARY  56  67 1640.0           SUBLIMATOR UA  (BTU/HR-F)
5605068  VARY  56  68                  CALCULATED EFFECTIVENESS
5605069  VARY  56  69 1036.0           HFG FOR WATER SUBLIMATOR  (BTU/LB)
5605070  VARY  56  70                  CALCULATED WATER USAGE RATE  (LB/HR)

5701000  ID**  57   0 WATER SUBLIMATOR 2
5702000  KBAS  57   0 49  4       56      1                                     58
5703000  NSTR  57   00                       PASS TEMP AND FLOW
5705067  VARY  57  67 1640.0           SUBLIMATOR UA  (BTU/HR-F)
5705068  VARY  57  68                  CALCULATED EFFECTIVENESS
5705069  VARY  57  69 1036.0           HFG FOR WATER SUBLIMATOR  (BTU/LB)
5705070  VARY  57  70                  CALCULATED WATER USAGE RATE  (LB/HR)

5801000  ID**  58   0 POTABLE WATER CHILLER
5802000  KBAS  58   0 49          57      1                                     61
5803000  NSTR  58   00                       PASS TEMP AND FLOW

5901000  ID**  59   0 LOW TEMP PAYLOAD HX
5902000  KBAS  59   0  4          60      2               76     2              77
5903000  NSTR  59   020002                   COUNTERFLOW,LIQ-LIQ,SS MODEL
5905001  VARY  59   1                  FREON FLOW (LB/HR) - CALC IN GPOLY
5905002  VARY  59   2 45.0             TEMP (F)
5905003  VARY  59   3 90.0           4 PRESS (PSIA)
5905066  VARY  59  66                  CALC UA IN GPOLY1

6001000  ID**  60   0  LOW TEMP P/L HEAT LOAD SIMULATOR
6002000  KBAS  60   0 49          59      2                                     59
6003000  NSTR  60   02                        INPUT HEAT LOAD IN GPOLY
6005065  VARY  60  65                  HEAT LOAD (BTU/HR) - INPUT IN GPOLY

6101000  ID**  61   0 LIQUID COOLED GARMENT HX
6102000  KBAS  61   0 49          58      1                                     60
6105001  VARY  61   1                  H2O FLOW  (LB/HR) - SET IN GPOLY
6105002  VARY  61   2 45.0             TEMP (F)
6105003  VARY  61   3 80.0           4 PRESSURE (PSIA)                    OFC1

6201000  ID**  62   0 FREON 21 PUMPS (2)
6202000  KBAS  62   0 22         100 0    2                                     63
6203000  NSTR  62   00002                     INPUT PUMP HEAT ADDITION
6205085  VARY  62  85                  PUMP HEAT ADDITION (WATTS) - CALC IN GPOLY

6301000  ID**  63   0 SPLIT-MID BODY COLDPLATES/FUEL CELL HX
6302000  KBAS  63   0 10          62 0    2                      2              64
6303000  NSTR  63   001                       SPECIFY PRI EXIT FLOW IN GPOLY1

6401000  ID**  64   0 AFT BODY COLDPLATES
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6402000  KBAS  64   0  8              63 0    2                                    66
6403000  NSTR  64   01                     1    TEST FLUID OUTLET TEMP .LT. R(69), SS MODEL
6405051  VARY  64  51 90.0                ELEC INITIAL TEMP (F)
6405066  VARY  64  66                     ELEC HEAT DISP (WATTS) - CALC IN GPOLY
6405067  VARY  64  67 1.0      E6         CP ELEC - CP CONTACT COND  (BTU/HR-F)
6405069  VARY  64  69 120.0               MAX FREON OUTLET TEMP  (F)

6501000  ID**  65   0 FUEL CELL HX
6502000  KBAS  65   0  4              66 0   3                 63 0   2                95
6503000  NSTR  65   0    2                 1    CNTRFLOW, LIQ-LIQ, SS MODEL, INPUT HX EFF.
6505001  VARY  65   1                     FC-40 FLOW (LB/HR)   - CALC IN GPOLY
6505002  VARY  65   2 130.0               TEMP (F)
6505003  VARY  65   3 70.0              4 PRESS (PSIA)
6505066  VARY  65  66                     CALC UA IN GPOLY)
6505067  VARY  65  67                     CALC HX EFFECTIVENESS IN GPOLY)

6601000  ID**  66   0 FUEL CELL WASTE HEAT SIMULATOR
6602000  KBAS  66   0 49  5           65     3                                         65
6603000  NSTR  66   02                          INPUT HEAT LOAD
6605065  VARY  66  65                     FUEL CELL WASTE HEAT (BTU/HR) - CALC IN GPOLY
6605067  VARY  66  67                     REQUIRED KW CALCULATED FROM HEAT LOAD DATA
6605068  VARY  66  68                     REQUIRED KW AS READ FROM TABLE DATA
6605069  VARY  66  69                     TOTAL H2O PRODUCED (LB/HR)

6701000  ID**  67   0 SPLIT -   GSE HX BYPASS CONTROL VALVE
6702000  KBAS  67   0 10              93     2                      2                  69
6703000  NSTR  67   00                          INPUT UNIV SPLIT RATIO
6705065  VARY  67  65 0.0                 SPLIT RATIO - ALL FLOW TO GSE HX

6801000  ID**  68   0 HYDRAULICS HX 1
6802000  KBAS  68   0  4              67     2                 -69      4              71
6803000  NSTR  68   020002                 1    CNTRFLOW, LIQ-LIQ, SS MODEL
6805020  VARY  68  20 930.0               FLOW (LB/HR)
6805021  VARY  68  21 20.0                TEMP (F)                                          HSD/PRO
6805022  VARY  68  22 500.            23  PRESS (PSIA)
6805066  VARY  68  66 200.                OVERALL UA  (BTU/HR-F)

6901000  ID**  69   0 HYDRAULIC HX NO. 1 COOLING LOAD SIMULATOR
6902000  KBAS  69   0 49             -68     4                                         68
6903000  NSTR  69   02                          INPUT HEAT LOAD
6905065  VARY  69  65                     HYD HX NO. 1 HEAT LOAD (BTU/HR) - CALC IN GPOLY

7001000  ID**  70   0 HYDRAULICS HX 2
7002000  KBAS  70   0  4              68     2                 -71      4              90
7003000  NSTR  70   020002                 1    CNTRFLOW, LIQ-LIQ, SS MODEL
7005020  VARY  70  20 930.0               FLOW (LB/HR)
7005021  VARY  70  21 20.0                TEMP (F)
7005022  VARY  70  22 500.            23  PRESS (PSIA)
7005066  VARY  70  66 200.                OVERALL UA  (BTU/HR-F)

7101000  ID**  71   0 HYDRAULIC HX NO. 2 COOLING LOAD SIMULATOR
7102000  KBAS  71   0 49             -70     4                                         70
7103000  NSTR  71   02                          INPUT HEAT LOAD
7105065  VARY  71  65                     HYD HX NO. 2 HEAT LOAD (BTU/HR) - CALC IN GPOLY

7201000  ID**  72   0 NH3 EVAPORATOR
7202000  KBAS  72   0 49  3           90 0   2                                         92
7203000  NSTR  72   00                          PASS FLOW AND TEMP
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7205067  VARY  72  67 8055.0          NH3 EVAPORATOR UA  (BTU/HR-F)
7205068  VARY  72  68 360.0           EFFECTIVE HFG FOR NH3  (BTU/LB)
7205069  VARY  72  69                 NH3 USAGE RATE  LB/HR)

7401000  ID**  74   0 LIQMIX = FROM GSE HX AND GSE HX BYPASS
7402000  KBAS  74   0  7          92 0  2              67              96

7501000  ID**  75   0 OXYGEN RESTRICTOR
7502000  KBAS  75   0 49          96 0  2                              74
7503000  NSTR  75   02                    INPUT HEAT LOAD
7505065  VARY  75  65                     HEAT LOAD (BTU/HR) = CALC IN GPOLY)

7601000  ID**  76   0 SPLIT = FREON FLOW TO ARS I/C AND LOW TEMP P/L HX
7602000  KBAS  76   0 10          75 0  2                0  2            8
7603000  NSTR  76  001                   SPECIFY PRI OUTFLOW = CALC SPLIT RATIO
7605001  VARY  76   1                    ARS I/C FLOW (LB/HR) = CALC IN GPOLY
7605002  VARY  76   2 40.0               TEMP (F)
7605003  VARY  76   3 269.0          4 PRESS (PSIA)
7605021  VARY  76  21 40.0               TEMP (F)
7605022  VARY  76  22 260.           23 PRESS (PSIA)

7701000  ID**  77   0 LIQMIX = FREON FLOW FROM ARS I/C AND LOW TEMP P/L HX
7702000  KBAS  77   0  7          -59  2              55              79

7801000  ID**  78   0 HIGH TEMP P/L HX
7802000  KBAS  78   0  5          79 0  2              -77 0  2        97
7803000  NSTR  78  000002                1   INPUT EFFECTIVENESS, LIQ-LIQ, SS MODEL
7805001  VARY  78   1                    FREON FLOW (LB/HR) = CALC IN GPOLY
7805002  VARY  78   2 75.0               TEMP (F)
7805003  VARY  78   3 90.0           4 PRESS (PSIA)
7805067  VARY  78  67 0.625               HX EFFECTIVENESS

7901000  ID**  79   0 HIGH TEMP P/L HEAT LOAD SIMULATOR
7902000  KBAS  79   0 49          76    2                              78
7903000  NSTR  79   02                    INPUT HEAT LOAD
7905065  VARY  79  65                     HEAT LOAD (BTU/HR) = INPUT IN GPOLY

8001000  ID**  80   0 SPLIT = (SEC FLOW TO PAYLOAD, PRI FLOW TO MAIN CABIN)
8002000  KBAS  80   0 10          23 2                 2              81  2
8003000  NSTR  80  002                   SPECIFY SEC FLOW
8005026  VARY  80  26                    PAYLOAD GAS FLOW = INPUT IN GPOLY FROM TABLE 1080

8101000  ID**  81   0 PAYLOAD CREW METABOLIC SIMULATION
8102000  KBAS  81   0  3          -80 2                              82  82
8103000  NSTR  81  000                   1   SOLVE FOR TYP CREWMAN; SS MODEL
8104016  KARY  81  16                    NUMBER OF CREWMEN = CALC IN GPOLY
8104017  KARY  81  17          990       AVG, MAN; 500 BTU/HR METABOLIC RATE; CLO=.77
8105071  VARY  81  71 25.0               AVG, CABIN GAS VELOCITY  (FT/MIN)
8105072  VARY  81  72 300.               MAX HEAT STORAGE/MAN (BTU)

8201000  ID**  82   0 PAYLOAD COMPARTMENT SIMULATION
8202000  KBAS  82   0  1 22          81 2                          1   82
8203000  NSTR  82  00010000010           CARRY ENTRAINED H2O
8205002  VARY  82   2 72.5               PAYLOAD CABIN TEMP  (F)
8205003  VARY  82   3 14.7           4   PAYLOAD CABIN PRESSURE  (PSIA)
8205006  VARY  82   6 1.4                H2O VAPOR FLOW  (LB/HR)
8205010  VARY  82  10 49.8               OXYGEN FLOW  (LB/HR)
8205011  VARY  82  11 159.1              NITROGEN FLOW  (LB/HR)
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8205012  VARY  82  12 2.1        CO2 FLOW   (LB/HR)
8205066  VARY  82  66            CABIN HEAT LOAD - CALC IN GPOLY
8205087  VARY  82  87 72.5       CABIN GAS DESIGN TEMP  (F)
8205088  VARY  82  88 20.0       CABIN GAS DESIGN TEMP TOL (F)
8205090  VARY  82  90 14.7       DESIGN TOTAL PRESSURE (PSIA)
8205091  VARY  82  91 0.2        DESIGN TOTAL PRESSURE TOL  (PSIA)
8205092  VARY  82  92 3.2        DESIGN OXYGEN PRESSURE  (PSIA)          RDD/SRR
8205093  VARY  82  93 0.125      DESIGN OXYGEN PRESSURE TOL (PSIA)       RDD/SRR
8205096  VARY  82  96 50.0       DESIGN DEW POINT (F)
8205097  VARY  82  97 20.0       DESIGN DEW POINT TOL (F)
8205099  VARY  82  99 7.6        MAX ALLOWABLE CO2 PRESSURE  (MM HG)
8205101  VARY  82 101 250.       MAX ALLOWABLE TRACE CONTAMINANT LEVEL (PPM)
8205122  VARY  82 122            TOTAL OUTBOARD LEAKAGE (LB/HR)
8205127  VARY  82 127            N-C ADDITION RATE  (LB/HR)
8205128  VARY  82 128            COND. VAPOR ADDITION RATE (LB/HR)
8205129  VARY  82 129            COND ENTRAINED LIQUID ADDITION RATE (LB/HR)
8205134  VARY  82 134 0.2        SPECIFIC HEAT OF N-C ADDED  (BTU/LB-F)
8205139  VARY  82 139 3000.       PAYLOAD VOLUME

8301000  ID**  83   0 GASMIX - (PAYLOAD AND MAIN CABIN GAS RETURNS)
8302000  KBAS  83   0  6          2 2               -82 2            84    2
8303000  MSTR  83   00                 1

8401000  ID**  84   0 ALTCOM - (SIMULATE HEAT LOAD ADDITIONS TO CABIN HX RETURN GAS)
8402000  KBAS  84   0 49          83 2                               34
8403000  MSTR  84   02                  INPUT HEAT LOAD IN GPOLY
8405002  VARY  84   2 79.4        TEMP (F)
8405003  VARY  84   3 14.7      4 PRESS (PSIA)
8405006  VARY  84   6 10.96       H2O VAPOR FLOW  (LB/HR)
8405010  VARY  84  10 349.9       OXYGEN FLOW  (LB/HR)
8405011  VARY  84  11 1074.5      NITROGEN FLOW  (LB/HR)
8405012  VARY  84  12 14.54       CO2 FLOW  (LB/HR)
8405065  VARY  84  65             MISC RETURN GAS HEAT  INPUT IN GPOLY FROM TABLE1085

8501000  ID**  85   0 GASMIX - (LIOH BEDS BYPASS)
8502000  KBAS  85   0  6          17 2              13               86    2

8601000  ID**  86   0 SPLIT - (CABIN TEMPERATURE CONTROL VALVE)
8602000  KBAS  86   0 10          85 2              2                22    2
8603000  MSTR  86   00               CALC UNIV SPLIT RATIO
8605065  VARY  86  65             SPLIT RATIO - CALC IN GPOLY TO CONTROL CABIN TEMP

9001000  ID**  90   0 GSE HX
9002000  KBAS  90   0  4          99   2           -91     2         72
9003000  MSTR  90   020002          1   CNTRFLOW, LIQ-LIQ, SS MODEL
9005066  VARY  90  66             CALC UA IN GPOLY)

9101000  ID**  91   0 GSE HX COOLANT SUPPLY CONDITIONS
9102000  KBAS  91   0 49               2
9105001  VARY  91   1             FLOW (LB/HR)
9105002  VARY  91   2 15.0        TEMP (F)
9105003  VARY  91   3 50.0      4 PRESS (PSIA)

9201000  ID**  92   0 FLASH EVAPORATOR
9202000  KBAS  92   0 49 -3      72 0   2                            74
9205067  VARY  92  67 1600.0      H2O EVAPORATOR UA  (BTU/LB-F)
9205068  VARY  92  68 960.0       EFFECTIVE HFG FOR NH3   (BTU/LB)
9205069  VARY  92  69             H2O USAGE RATE  (LB/HR)
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9301000  ID**  93   0 SPLIT - (FLASH EVAPORATOR BYPASS VALVE)
9302000  KBAS  93   0 10            95 0   2                 0   2                67
9303000  NSTR  93   002                          SPECIFY SEC OUTFLOW - CALC SPLIT RATIO

9401000  ID**  94   0 LIQMIX - (FLASH EVAP BYPASS FLOW + DIVERTER VALVE FLOW)
9402000  KBAS  94   0  7            76 0   2                93                     55
9405001  VARY  94   1 2800.                 ARS I/C FLOW (LB/HR)
9405002  VARY  94   2 40.                   TEMP (F)
9405003  VARY  94   3 260.                4 PRESS (PSIA)

9501000  ID**  95   0 LIQMIX - AFT BODY COLDPLATES / FUEL CELL HX
9502000  KBAS  95   0  7            64 0   2                65                     93
9503000  NSTR  95   0                            SELECT MIN SOURCE PRESS

9601000  ID**  96   0 SPLIT-AFT BODY COLDPLATES/ARS I/C+PAYLOAD FLOWS
9602000  KBAS  96   0 10            74 0   2                 0   2                75
9603000  NSTR  96   002                          SPECIFY SEC EXIT FLOW IN GPOLYI

9701000  ID**  97   0 MID BODY COLDPLATES
9702000  KBAS  97   0  8           -96 0   2                                      100
9703000  NSTR  97   01                      1    TEST FLUID OUTLET TEMP .LT. R(69), SS MODEL
9705051  VARY  97  51 40.0                  ELEC INITIAL TEMP (F)
9705066  VARY  97  66                       ELEC HEAT DISP (WATTS) - CALC IN GPOLY
9705067  VARY  97  67 1.0         E6        CP ELEC - CP CONTACT COND. (BTU/HR-F)
9705069  VARY  97  69 120.                  MAX FREON OUTLET TEMP (F)

9801000  ID**  98   0 SPLIT - RADIATOR BYPASS CONTROL VALVE
9802000  KBAS  98   0 10            70     2                     2               101
9805065  VARY  98  65 0.0                   SPLIT RATIO - ALL FLOW TO RADIATOR

9901000  ID**  99   0 LIQMIX - FROM RADIATOR AND RADIATOR BYPASS
9902000  KBAS  99   0  7           113 0   2                98                     93
9905001  VARY  99   1                       FREON FLOW (LB/HR) - CALC IN GPOLY
9905002  VARY  99   2                       TEMP (F) - SET IN GPOLY
9905003  VARY  99   3 260.0               4 PRESSURE (PSIA)

10001000 ID** 100   0 LIQMIX - HIGH TEMP P/L HX / MID BODY COLDPLATES
10002000 KBAS 100   0  7            97 0   2                78                     62
10003000 NSTR 100   0                            SELECT MIN SOURCE PRESS

10101000 ID** 101   0 SPLIT TO SIDE 1 AND SIDE 2 PANELS
10102000 KBAS 101   0 10            98     2                     2               102
10105065 VARY 101  65 0.5                   SPLIT RATIO

10201000 ID** 102   0 SPLIT TO FORE AND AFT TOP PANELS OF SIDE 1
10202000 KBAS 102   0 10           101     2                     2               103
10205065 VARY 102  65 0.5                   SPLIT RATIO

10301000 ID** 103   0 SIDE 1 FORE TOP RADIATOR PANELS
10302000 KBAS 103   0 62           102     2                                      104
10303000 NSTR 103   011                     1    USE STEADY STATE SOLUTION
10304016 KARY 103  16          103          SOLAR HEAT FLUX TABLE NO.
10304017 KARY 103  17          104          IR HEAT FLUX TABLE NO.
10305066 VARY 103  66 .25                   SOLAR ABSORPTIVITY
10305067 VARY 103  67 .92                   IR EMMISSIVITY
10305068 VARY 103  68 .934                  OVERALL FIN RADIATOR EFFECTIVENESS  (NO PRIME TUBE)
10305069 VARY 103  69 1.0                   SCRIPT F
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10305070  VARY 103   70 249.4          RADIATING AREA (FT2)                    (NO PRIME TUBE)
10305071  VARY 103   71 3655.5         UA AT  550 LB/HR  (BTU/HR-F)
10305072  VARY 103   72 550.           FLOW AT CALCULATED UA, R(71)   (LB/HR)
10305073  VARY 103   73 0.8            UA FLOW PROPORTIONALITY EXPONENT
10305074  VARY 103   74 0.00001        TAU CONVERGENCE CRITERION
10305075  VARY 103   75 0.01           FLUID OUTLET TEMP CONVERGENCE CRITERION (F)
10305087  VARY 103   87 151.6          RADIATOR + TUBE MASS  (LB)
10305088  VARY 103   88 0.22           RADIATOR + TUBE SPECIFIC HEAT, AL6061-T6  (BTU/LB-F)

10401000  ID** 104    0 SIDE 1 AFT TOP RADIATOR PANELS
10402000  KBAS 104    0 62       -102      2                                     105
10403000  NSTR 104     011                 1     USE STEADY STATE SOLUTION
10404016  KARY 104   16             103    SOLAR HEAT FLUX TABLE NO.
10404017  KARY 104   17             104    IR HEAT FLUX TABLE NO.
10405066  VARY 104   66 .25               SOLAR ABSORPTIVITY
10405067  VARY 104   67 .92               IR EMMISSIVITY
10405068  VARY 104   68 .934              OVERALL FIN RADIATOR EFFECTIVENESS  (NO PRIME TUBE)
10405069  VARY 104   69 1.0               SCRIPT F
10405070  VARY 104   70 249.4             RADIATING AREA (FT2)                 (NO PRIME TUBE)
10405071  VARY 104   71 3655.5            UA AT  550 LB/HR  (BTU/HR-F)
10405072  VARY 104   72 550.              FLOW AT CALCULATED UA, R(71)   (LB/HR)
10405073  VARY 104   73 0.8               UA FLOW PROPORTIONALITY EXPONENT
10405074  VARY 104   74 0.00001           TAU CONVERGENCE CRITERION
10405075  VARY 104   75 0.01              FLUID OUTLET TEMP CONVERGENCE CRITERION (F)
10405087  VARY 104   87 151.6             RADIATOR + TUBE MASS  (LB)
10405088  VARY 104   88 0.22              RADIATOR + TUBE SPECIFIC HEAT, AL6061-T6  (BTU/LB-F)

10501000  ID** 105    0 LIQMIX FROM SIDE 1 FORE AND AFT TOP RADIATOR PANELS
10502000  KBAS 105    0  7          103     2            -103                    106

10601000  ID** 106    0 SIDE 1 CAVITY RADIATOR PANELS
10602000  KBAS 106    0 62          105     2                                    111
10603000  NSTR 106     011                  1     USE STEADY STATE SOLUTION
10604016  KARY 106   16             106     SOLAR HEAT FLUX TABLE NO.
10604017  KARY 106   17             107     IR HEAT FLUX TABLE NO.
10605066  VARY 106   66 .45                 SOLAR ABSORPTIVITY
10605067  VARY 106   67 .92                 IR EMMISSIVITY
10605068  VARY 106   68 .944                OVERALL FIN RADIATOR EFFECTIVENESS  (NO PRIME TUBE)
10605069  VARY 106   69 1.0                 SCRIPT F
10605070  VARY 106   70 175.12              RADIATING AREA  (FT2)               (NO PRIME TUBE)
10605071  VARY 106   71 3655.5              UA AT  550 LB/HR  (BTU/HR-F)
10605072  VARY 106   72 550.                FLOW AT CALCULATED UA, R(71)   (LB/HR)
10605073  VARY 106   73 0.8                 UA FLOW PROPORTIONALITY EXPONENT
10605074  VARY 106   74 0.00001             TAU CONVERGENCE CRITERION
10605075  VARY 106   75 0.01                FLUID OUTLET TEMP CONVERGENCE CRITERION (F)
10605087  VARY 106   87 151.6               RADIATOR + TUBE MASS  (LB)
10605088  VARY 106   88 0.22                RADIATOR + TUBE SPECIFIC HEAT, AL6061-T6  (BTU/LB-F)

10701000  ID** 107    0 SPLIT TO FORE AND AFT TOP PANELS OF SIDE 2
10702000  KBAS 107    0 10         -101     2                2
10705066  VARY 107   65 0.5                 SPLIT RATIO

10801000  ID** 108    0 SIDE 2 FORE TOP RADIATOR PANELS
10802000  KBAS 108    0 62          107     2
10803000  NSTR 108     011                  1     USE STEADY STATE SOLUTION
10804016  KARY 108   16             103     SOLAR HEAT FLUX TABLE NO.
10804017  KARY 108   17             104     IR HEAT FLUX TABLE NO.
10805066  VARY 108   66 .25                 SOLAR ABSORPTIVITY
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10805067  VARY 108  67 .92          IR EMMISSIVITY
10805068  VARY 108  68 .934         OVERALL FIN RADIATOR EFFECTIVENESS  (NO PRIME TUBE)
10805069  VARY 108  69 1.0          SCRIPT F
10805070  VARY 108  70 249.4        RADIATING AREA (FT2)                (NO PRIME TUBE)
10805071  VARY 108  71 3655.5       UA AT  550 LB/HR  (BTU/HR-F)
10805072  VARY 108  72 550.         FLOW AT CALCULATED UA, R(71)  (LB/HR)
10805073  VARY 108  73 0.8          UA FLOW PROPORTIONALITY EXPONENT
10805074  VARY 108  74 0.00001      TAU CONVERGENCE CRITERION
10805075  VARY 108  75 0.01         FLUID OUTLET TEMP CONVERGENCE CRITERION (F)
10805087  VARY 108  87 151.6        RADIATOR + TUBE MASS  (LB)
10805088  VARY 108  88 0.22         RADIATOR + TUBE SPECIFIC HEAT, AL6061-T6  (BTU/LB-F)

10901000  ID** 109   0 SIDE 2 AFT TOP RADIATOR PANELS
10902000  KBAS 109   0 62          -107    2
10903000  NSTR 109   011           1    USE STEADY STATE SOLUTION
10904016  KARY 109  16        103  SOLAR HEAT FLUX TABLE NO.
10904017  KARY 109  17        109  IR HEAT FLUX TABLE NO.
10905066  VARY 109  66 .25         SOLAR ABSORPTIVITY
10905067  VARY 109  67 .92         IR EMMISSIVITY
10905068  VARY 109  68 .934        OVERALL FIN RADIATOR EFFECTIVENESS  (NO PRIME TUBE)
10905069  VARY 109  69 1.0         SCRIPT F
10905070  VARY 109  70 249.4       RADIATING AREA (FT2)                (NO PRIME TUBE)
10905071  VARY 109  71 3655.5      UA AT  550 LB/HR  (BTU/HR-F)
10905072  VARY 109  72 550.        FLOW AT CALCULATED UA, R(71)  (LB/HR)
10905073  VARY 109  73 0.8         UA FLOW PROPORTIONALITY EXPONENT
10905074  VARY 109  74 0.00001     TAU CONVERGENCE CRITERION
10905075  VARY 109  75 0.01        FLUID OUTLET TEMP CONVERGENCE CRITERION (F)
10905087  VARY 109  87 151.6       RADIATOR + TUBE MASS  (LB)
10905088  VARY 109  88 0.22        RADIATOR + TUBE SPECIFIC HEAT, AL6061-T6  (BTU/LB-F)

11001000  ID** 110   0 LIQNIX FROM SIDE 2 FORE AND AFT TOP RADIATOR PANELS
11002000  KBAS 110   0 7          108    2          -109

11101000  ID** 111   0 SIDE 2 CAVITY RADIATOR PANELS                          112
11102000  KBAS 111   0 62         105    2
11103000  NSTR 111   011           1    USE STEADY STATE SOLUTION
11104016  KARY 111  16        111  SOLAR HEAT FLUX TABLE NO.
11104017  KARY 111  17        112  IR HEAT FLUX TABLE NO.
11105066  VARY 111  66 .45         SOLAR ABSORPTIVITY
11105067  VARY 111  67 .92         IR EMMISSIVITY
11105068  VARY 111  68 .944        OVERALL FIN RADIATOR EFFECTIVENESS  (NO PRIME TUBE)
11105069  VARY 111  69 1.0         SCRIPT F
11105070  VARY 111  70 175.12      RADIATING AREA (FT2)                (NO PRIME TUBE)
11105071  VARY 111  71 3655.5      UA AT  550 LB/HR  (BTU/HR-F)
11105072  VARY 111  72 550.        FLOW AT CALCULATED UA, R(71)  (LB/HR)
11105073  VARY 111  73 0.8         UA FLOW PROPORTIONALITY EXPONENT
11105074  VARY 111  74 0.00001     TAU CONVERGENCE CRITERION
11105075  VARY 111  75 0.01        FLUID OUTLET TEMP CONVERGENCE CRITERION (F)
11105087  VARY 111  87 151.6       RADIATOR + TUBE MASS  (LB)
11105088  VARY 111  88 0.22        RADIATOR + TUBE SPECIFIC HEAT, AL6061-T6  (BTU/LB-F)

11201000  ID** 112   0 LIQNIX FROM SIDE 1 AND SIDE 2 RADIATOR PANELS
11202000  KBAS 112   0 7          106    2          -111                     113

11301000  ID** 113   0 CALCULATE TIME AVERAGED OUTLET TEMPERATURE                101
11302000  KBAS 113   0 29  4      112    2
11303000  NSTR 113   00            METER MAIN FLOW ONLY
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1000109010 TABL  1 10  2          5          LIN  STP
1000110020 TITL  1 20RADIATOR RETURN FLOW (LB/HR) VS HRS
1000111100 VALU  1 10021 0.0      6.288      12.576     18.864     25.152
1000111110 VALU  1 11020 2200.    2400.      2800.      3200.      3800.

1000209010 TABL  2 10  2          19         LIN  STP
1000210020 TITL  2 20RADIATOR RETURN TEMPERATURE (F) VS. HRS
1000211100 VALU  2 10021 0.0      1.572      3.144      4.716      6.288      7.860
1000211110 VALU  2 11020 125.     150.       175.       200.       125.       150.
1000211120 VALU  2 12021 9.432    11.004     12.576     14.148     15.720     17.292
1000211130 VALU  2 13020 175.     200.       100.       125.       150.       175.
1000211140 VALU  2 14021 18.864   20.436     22.008     23.580     25.152     26.724
1000211150 VALU  2 15020 100.     125.       150.       175.       100.       125.
1000211160 VALU  2 16021 28.296
1000211170 VALU  2 17020 150.

1000309010 TABL  3 10  2          6          LIN  STP
1000310020 TITL  3 20      HATCH OPEN OR CLOSED(OPEN=1) VS TIME(HRS)
1000311100 VALU  3 10021 0.0      16.        24.        40.        48.        64.
1000311200 VALU  3 20020 1.1      0.         1.1        0.         1.1        0.

1010309010 TABL 103 10  2         18         LIN  LIN
1010310020 TITL 103 20SOLAR FLUX, BETA=78 DEG, SOLAR ORIENTED, TOP PNLS, BTU/HR-FT2 VS HRS
1010311100 VALU 103 10021 0.0     .0655      .131       .1965      .262       .3275
1010311110 VALU 103 11020 452.87  452.79     452.53     451.96     451.03     449.23
1010311120 VALU 103 12021 .393    .4585      .524       1.040      1.1135     1.179
1010311130 VALU 103 13020 446.83  444.01     443.0      443.0      444.01     446.85
1010311140 VALU 103 14021 1.2455  1.31       1.3755     1.441      1.5065     1.572
1010311150 VALU 103 15020 449.29  451.03     451.96     452.53     452.79     452.87

1010409010 TABL 104 10  2         25         LIN  LIN
1010410020 TITL 104 20IR FLUX, BETA=78 DEG, SOLAR ORIENTED, TOP PANELS, BTU/HR-FT2 VS HRS
1010411100 VALU 104 10021 0.0     .0655      .131       .1965      .262       .3275
1010411110 VALU 104 11020 14.2    14.38      14.9       15.72      16.79      18.03
1010411120 VALU 104 12021 .393    .4585      .524       .5895      .655       .7205
1010411130 VALU 104 13020 19.36   21.07      22.66      24.03      25.09      25.76
1010411140 VALU 104 14021 .786    .8515      .917       .9825      1.040      1.1135
1010411150 VALU 104 15020 25.99   25.76      25.09      24.03      22.66      21.07
1010411160 VALU 104 16021 1.179   1.2455     1.31       1.3755     1.441      1.5065
1010411170 VALU 104 17020 19.36   18.03      16.79      15.72      14.9       14.38
1010411180 VALU 104 18021 1.572
1010411190 VALU 104 19020 14.2

1010609010 TABL 106 10  2         16         LIN  LIN
1010610020 TITL 106 20SOLAR FLUX, BETA=78, SOLAR ORIENTED, SIDE 1 CAY, BTU/HR-FT2 VS HRS
1010611100 VALU 106 10021 0.0     .0655      .131       .1965      .262       .3275
1010611110 VALU 106 11020 .39     .51        .68        .87        1.16       1.09
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1010611120  VALU 106 12021 .393      .4585      1.1135     1.179      1.2455     1.31
1010611130  VALU 106 13020 .41       0.0        0.0        .41        1.09       1.16
1010611140  VALU 106 14021 1.3755    1.441      1.5065     1.572
1010611150  VALU 106 15020 .87       .68        .51        .39

1010709010  TABL 107  10   2          25          LIN  LIN
1010710020  TITL 107  20IR FLUX, BETA=78, SOLAR ORIENTED, SIDE 1 CAVITY, BTU/HR-FT2 VS HRS
1010711100  VALU 107 10021 0.0        .0655      .131       .1965      .262       .3275
1010711110  VALU 107 11020 2.48       2.89       4.03       5.65       9.6        14.4
1010711120  VALU 107 12021 .393       .4585      .524       .5895      .655       .7205
1010711130  VALU 107 13020 19.36      25.0       31.9       37.56      42.26      45.54
1010711140  VALU 107 14021 .786       .8515      .917       .9825      1.040      1.1135
1010711150  VALU 107 15020 46.74      45.54      42.26      37.56      31.9       25.0
1010711160  VALU 107 16021 1.179      1.2455     1.31       1.3755     1.441      1.5065
1010711170  VALU 107 17020 19.36      14.5       9.6        5.65       4.03       2.89
1010711180  VALU 107 18021 1.572
1010711190  VALU 107 19020 2.48

1011109010  TABL 111  10   2          16          LIN  LIN
1011110020  TITL 111  20SOLAR FLUX, BETA=78, SOLAR ORIENTED, SIDE 2 CAVITY, BTU/HR-FT2 VSHR
1011111100  VALU 111 10021 0.0        .0655      .131       .1965      .262       .3275
1011111110  VALU 111 11020 22.3       20.81      16.78      11.27      5.93       2.49
1011111120  VALU 111 12021 .393       .4585      1.1135     1.179      1.2455     1.31
1011111130  VALU 111 13020 .41        0.0        0.0        .41        2.49       5.93
1011111140  VALU 111 14021 1.3755     1.441      1.5065     1.572
1011111150  VALU 111 15020 11.27      16.78      20.81      22.3

1011209010  TABL 112  10   2          25          LIN  LIN
1011210020  TITL 112  20IR FLUX, BETA=78, SOLAR ORIENTED, SIDE 2 CAVITY, BTU/HR-FT2 VS HRS
1011211100  VALU 112 100  0.0        .0655      .131       .1965      .262       .3275
1011211110  VALU 112 110  56.54      55.05      50.56      43.26      35.55      27.48
1011211120  VALU 112 120  .393       .4585      .524       .5895      .655       .7205
1011211130  VALU 112 130  19.36      13.04      8.77       3.68       1.16       .19
1011211140  VALU 112 140  .786       .8515      .917       .9825      1.040      1.1135
1011211150  VALU 112 150  .15        .19        1.16       3.68       6.77       13.04
1011211160  VALU 112 160  1.179      1.2455     1.31       1.3755     1.441      1.5065
1011211170  VALU 112 170  19.36      27.48      35.53      43.26      50.56      55.05
1011211180  VALU 112 180  1.572
1011211190  VALU 112 190  56.54

1099909010  TABL 999  10   2          24          LIN  STP
1099910020  TITL 999  20MISSION TIME (SEC) VS. MISSION PHASE (SORTIE 2A)
1099911100  VALU 999 10021 1.0        2.0        3.0        4.0        5.0        6.0
1099911110  VALU 999 11020 -600.      0.0        596.       1459.      2203.      69161.
1099911120  VALU 999 12021 7.0        8.0        9.0        10.0       11.0       12.0
1099911130  VALU 999 13020 83232.     89075.     94200.     166200.    176350.    184200.
1099911140  VALU 999 14021 13.0       14.0       15.0       16.0       17.0       18.0
1099911150  VALU 999 15020 270600.    357000.    443400.    529800.    537000.    595225.
1099911160  VALU 999 16021 19.0       20.0       21.0       22.0       23.0       24.0
1099911170  VALU 999 17020 597033.    599645.    599841.    600000.    600120.    600900.

1100009010  TABL1000  10   2          24          LIN  STP
1100010020  TITL1000  20MISSION PHASE VS. MISSION TIME (SEC) FOR SORTIE MISSION 2A
1100011100  VALU1000 10021 -600.      0.0        596.       1459.      2203.      69161.
1100011110  VALU1000 11020 1.0        2.0        3.0        4.0        5.0        6.0
1100011120  VALU1000 12021 83232.     89075.     94200.     166200.    176350.    184200.
1100011130  VALU1000 13020 7.0        8.0        9.0        10.0       11.0       12.0
1100011140  VALU1000 14021 270600.    357000.    443400.    529800.    537000.    595225.
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1100011150  VALU1000 15020 13.0      14.0      15.0      16.0      17.0      18.0
1100011160  VALU1000 16021 577833.   599645.   599841.   600000.   600120.   600900.
1100011170  VALU1000 17020 19.0      20.0      21.0      22.0      23.0      24.0

1100109010  TABL1001  10   2         3          LIN   STP
1100110020  TITL1001  20NUMBER OF MEN IN ORBITER CABIN VS. MISSION PH (SORTIE 2A)
1100111100  VALU1001 10021 1.0       12.0      18.0
1100111110  VALU1001 11020 10.0      4.0       10.0

1100209010  TABL1002  10   2         23         LIN   STP
1100210020  TITL1002  20CABIN AIR-METABOLIC(BTU/HR) VS MISSION PHASE (SORTIE 2)
1100210030  TITL1002  30REVISION APRIL 10/74
1100211100  VALU1002 10021 1.0       2.0       3.0       4.0       5.0       6.0
1100211110  VALU1002 11020 5127.     5127.     3752.     3891.     -879.     3455.
1100211120  VALU1002 12021 7.0       8.0       9.0       10.0      11.0      12.0
1100211130  VALU1002 13020 3639.     5996.     535.      4533.     3718.     -1295.
1100211140  VALU1002 14021 13.0      14.0      15.0      16.0      17.0      18.0
1100211150  VALU1002 15020 -1295.    -1295.    -1295.    -1295.    -1452.    5127.
1100211160  VALU1002 16021 19.0      20.0      21.0      22.0      23.0
1100211170  VALU1002 17020 5127.     5127.     7657.     7657.     7194.

1102409010  TABL1024  10   2         23         LIN   STP
1102410020  TITL1024  20TOTAL AIR LOAD FOR AV BAYS1,2,3(BTU/HR) VS MISSION PHASE(SORTIE 2)
1102410030  TITL1024  30REVISION APRIL 10/74
1102411100  VALU1024 10021 1.0       2.0       3.0       4.0       5.0       6.0
1102411110  VALU1024 11020 12873.    12873.    13148.    8417.     6155.     8681.
1102411120  VALU1024 12021 7.0       8.0       9.0       10.0      11.0      12.0
1102411130  VALU1024 13020 8681.     8681.     9245.     9245.     8681.     6430.
1102411140  VALU1024 14021 13.0      14.0      15.0      16.0      17.0      18.0
1102411150  VALU1024 15020 6430.     6430.     6430.     6430.     7107.     13452.
1102411160  VALU1024 16021 19.0      20.0      21.0      22.0      23.0
1102411170  VALU1024 17020 14776.    16184.    16144.    15315.    7795.

1103309010  TABL1033  10   2         3          LIN   STP
1103310020  TITL1033  20 INTERCHANGER WATER FLOW (LB/HR) VS. MISSION PH (SORTIE P/L 8)
1103311100  VALU1033 10021 0.0       12.0      16.0
1103311110  VALU1033 11020 800.      800.      800.

1104009010  TABL1040  10   2         23         LIN   STP
1104010020  TITL1040  20IHU COLD PLATE HEAT LOAD(BTU/HR) VS MISSION PHASE(SORTIE2)
1104010030  TITL1040  30REVISION APRIL 10/74
1104011100  VALU1040 10021 1.0       2.0       3.0       4.0       5.0       6.0
1104011110  VALU1040 11020 2027.     2027.     2027.     1637.     1353.     1637.
1104011120  VALU1040 12021 7.0       8.0       9.0       10.0      11.0      12.0
1104011130  VALU1040 13020 1637.     1318.     1288.     1637.     1637.     948.
1104011140  VALU1040 14021 13.0      14.0      15.0      16.0      17.0      18.0
1104011150  VALU1040 15020 948.      948.      948.      948.      1377.     2027.
1104011160  VALU1040 16021 19.0      20.0      21.0      22.0      23.0
1104011170  VALU1040 17020 2027.     2027.     2027.     2027.     1014.

1104309010  TABL1043  10   2         2          LIN   STP
1104310020  TITL1043  20WATER LOOP TOTAL FLOW (LB/HR) VS. MISSION PH (SORTIE 2A)
1104310030  TITL1043  30REVISION MAY 30/74
1104311100  VALU1043 10021 0.0       24.0
1104311110  VALU1043 11020 950.      950.

1105009010  TABL1050  10   2         23         LIN   STP
1105010020  TITL1050  20TOTAL CP HEAT LOAD FOR AV BAYS1,2,3(BTU/HR)VS MISSION PHASE(SORTIE2)
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1105010030 TITL1050 30REVISION APRIL 10/74
1105011100 VALU1050 10021 1.0        2.0        3.0        4.0        5.0        6.0
1105011110 VALU1050 11020 9719.      9878.      8670.      6498.      6328.      6359.
1105011120 VALU1050 12021 7.0        8.0        9.0        10.0       11.0       12.0
1105011130 VALU1050 13020 7787.      6970.      6545.      6037.      6486.      5665.
1105011140 VALU1050 14021 13.0       14.0       15.0       16.0       17.0       18.0
1105011150 VALU1050 15020 5665.      5665.      5665.      5665.      5702.      5334.
1105011160 VALU1050 16021 19.0       20.0       21.0       22.0       23.0
1105011170 VALU1050 17020 6286.      6418.      6700.      5886.      5702.

1106009010 TABL1060 10   2          3          LIN  STP
1106010020 TITL1060 20 PAYLOAD HEAT LOAD VS. MISSION PHASE  (P/L B)  4-8-74
1106010030 TITL1060 30REVISION APRIL 10/74
1106011100 VALU1060 10021 1.0        12.0       16.0
1106011110 VALU1060 11020 5200.      29000.     5200.

1106209010 TABL1062 10   2          3          LIN  STP
1106210020 TITL1062 20FREON LOOP TOTAL FLOW (LB/HR) VS. MISSION PH (SORTIE 2A)
1106210030 TITL1062 30REVISION MAY 30/74
1106211100 VALU1062 10021 0.0        4.0        18.0
1106211110 VALU1062 11020 5500.      5000.      5500.

1106409010 TABL1064 10   2          10         LIN  STP
1106410020 TITL1064 20 MID-BODY COLDPLATE Q (BTU/HR) VS. MISSION PH
1106411100 VALU1064 10021 1.0        4.0        5.0        6.0        9.0        10.0
1106411110 VALU1064 11020 512.       358.       256.       358.       259.       358.
1106411120 VALU1064 12021 11.0       12.0       18.0       19.0
1106411130 VALU1064 13020 350.       171.       358.       558.

1106909010 TABL1069 10   2          5          LIN  STP
1106910020 TITL1069 20 HYDRAULICS HX NO. 1 Q (BTU/HR) VS. MISSION PH
1106911100 VALU1069 10021 1.0        5.0        6.0        16.0       17.0
1106911110 VALU1069 11020 0.0        -15000.    0.0        -15000.    0.0

1107109010 TABL1071 10   2          2          LIN  STP
1107110020 TITL1071 20HYDRAULIC LOOP 2 HEAT LOAD (BTU/HR) VS. MISSION PH (SORTIE 2A)
1107111100 VALU1071 10021 0.0        23.0
1107111110 VALU1071 11020 0.0        0.0

1107509010 TABL1075 10   2          12         LIN  STP
1107510020 TITL1075 20 O2 RESTRICTOR + ENVIRONMENT Q (BTU/HR) VS. MISSION PH
1107511100 VALU1075 10021 1.0        2.0        5.0        6.0        9.0        14.0
1107511110 VALU1075 11020 500.       0.0        -1500.     500.       0.0        500.
1107511120 VALU1075 12021 15.0       16.0       17.0       18.0       19.0       22.0
1107511130 VALU1075 13020 0.0        -1500.     500.       0.0        1000.      2000.

1107609010 TABL1076 10   2          7          LIN  STP
1107610020 TITL1076 20ARS I/C FLOW FROM DIVERTER VALVE (LB/HR) VS. MISSION PH (SORTIE 2A)
1107610030 TITL1076 30REVISION MAY 30/74
1107611100 VALU1076 10021 1.0        2.0        4.0        12.0       17.0       18.0
1107611110 VALU1076 11020 4380.      0.0        3982.      2400.      3982.      0.0
1107611120 VALU1076 12021 20.0
1107611130 VALU1076 13020 4380.

1107909010 TABL1079 10   2          2          LIN  STP
1107910020 TITL1079 20HIGH TEMP PAYLOAD HX HEAT LOAD (BTU/HR)  VS. MISSION PH (SORTIE 2A)
1107911100 VALU1079 10021 1.0        23.0
1107911110 VALU1079 11020 0.0        0.0
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1108009010 TABL1080  10   2          3          LIN   STP
1108010020 TITL1080  20PAYLOAD GAS FLOW (CFH) VS. MISSION PH (SORTIE 2A)
1108011100 VALU1080 10021 1.0        12.0       18.0
1108011110 VALU1080 11020 0.0        48.0       0.0

1108109010 TABL1081  10   2          3          LIN   STP
1108110020 TITL1081  20 NUMBER OF MEN IN PAYLOAD CABIN VS. MISSION PH (SORTIE 2A)
1108111100 VALU1081 10021 1.0        12.0       18.0
1108111110 VALU1081 11020 0.0        3.0        0.0

1108209010 TABL1082  10   2          2          LIN   STP
1108210020 TITL1082  20PAYLOAD AIR LOAD VS. MISSION PH FOR 48CFH (SORTIE 2A) (BTU/HR)
1108211100 VALU1082 10021 1.0        23.0
1108211110 VALU1082 11020 0.0        0.0

1108409010 TABL1084  10   2          23         LIN   STP
1108410020 TITL1084  20CABIN HX IN HEAT LOAD (BTU/HR) VS. MISSION PHASE (SORTIE 2A)
1108410030 TITL1084  30REVISION APRIL 10/74
1108411100 VALU1084 10021 1.0        2.0        3.0        4.0        5.0        6.0
1108411110 VALU1084 11020 5417.      5417.      5359.      4406.      5410.      3388.
1108411120 VALU1084 12021 7.0        8.0        9.0        10.0       11.0       12.0
1108411130 VALU1084 13020 3388.      3426.      1524.      3194.      3524.      641.
1108411140 VALU1084 14021 13.0       14.0       15.0       16.0       17.0       18.0
1108411150 VALU1084 15020 641.       641.       641.       641.       416.       4401.
1108411160 VALU1084 16021 19.0       20.0       21.0       22.0       23.0
1108411170 VALU1084 17020 5457.      5471.      5471.      5471.      1289.

1109309010 TABL1093  10   2          5          LIN   STP
1109310020 TITL1093  20 FLASH EVAP BYPASS FLOW ACTIVATION FLAG VS  MISSION PH (SORTIE)
1109310030 TITL1093  30REVISION JUNE 5/74
1109311100 VALU1093 10021 1.0        2.0        4.0        18.0       20.0
1109311110 VALU1093 11020 0.0        1.0        0.0        1.0        0.0

1109709010 TABL1097  10   2          18         LIN   STP
1109710020 TITL1097  20 AFT-BODY COLDPLATE Q (BTU/HR) VS. MISSION PH
1109711100 VALU1097 10021 1.0        2.0        3.0        4.0        5.0        6.0
1109711110 VALU1097 11020 7065.      7869.      5380.      2466.      2225.      2363.
1109711120 VALU1097 12021 7.0        9.0        10.0       11.0       12.0       16.0
1109711130 VALU1097 13020 2730.      2363.      2130.      2738.      1633.      1962.
1109711140 VALU1097 14021 17.0       18.0       19.0       20.0       21.0       23.
1109711150 VALU1097 15020 2366.      4402.      6571.      6203.      6459.      9179.

1206609010 TABL2066  10   2          23         LIN   STP
1206610020 TITL2066  20 ORBITER KW REQUIRED VS. MISSION PHASE  (P/L B) 4-8-74
1206611100 VALU2066 10021 1.0        2.0        3.0        4.0        5.0        6.0
1206611110 VALU2066 11020 18.5       18.3       14.8       10.8       8.6        9.8
1206611120 VALU2066 12021 7.0        8.0        9.0        10.0       11.0       12.0
1206611130 VALU2066 13020 10.8       11.3       10.0       10.6       10.8       8.6
1206611140 VALU2066 14021 13.0       14.0       15.0       16.0       17.0       18.0
1206611150 VALU2066 15020 9.1        9.1        9.1        10.1       9.7        13.6
1206611160 VALU2066 16021 19.0       20.0       21.0       22.0       23.0
1206611170 VALU2066 17020 14.0       15.4       15.7       15.3       13.7

1306609010 TABL3066  10   2          3          LIN   STP
1306610020 TITL3066  20 PAYLOAD KW REQUIRED VS. MISSION PHASE   (P/L B) 4-8-74
1306611100 VALU3066 10021 1.0        12.0       16.0
1306611110 VALU3066 11020 1.0        7.0        1.0
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1406609010 TABL4066  10   2          7          LIN   LIN
1406610020 TITL4066. 20SPECIFIC H2 CONSUMPTION (LB/KWH) VS. POWER (KW)
1406610030 TITL4066  30  REF. MC464-0115, REV B, P53
1406611100 VALU4066 10021 2.0       3.0        4.0        5.5        7.0        9.0
1406611110 VALU4066 11020 .3862     .0876      .0887      .090       .091       .0922
1406611120 VALU4066 12021 12.0
1406611130 VALU4066 13020 .0936

1506609010 TABL5066  10   2          6          LIN   LIN
1506610020 TITL5066. 20FUEL CELL PKG WASTE HEAT (BTU/HR) VS. OUTPUT KW
1506610030 TITL5066  30  REF. MC464-0115, REV B, P53
1506611100 VALU5066 10021 2.0       4.0        6.0        8.0        10.0       12.0
1506611110 VALU5066 11020 3800.     7600.      11900.     16500.     21300.     26200.

1606609010 TABL6066  10   2          11         LIN   LIN
1606610020 TITL6066. 20MAX PUMP FLOW (LB/HR) VS. OUTPUT KW
1606610030 TITL6066  30  REF. MC464-0115, REV B, P58
1606611100 VALU6066 10021 2.0       3.0        4.0        5.0        6.0        7.0
1606611110 VALU6066 11020 400.      530.       650.       755.       850.       950.
1606611120 VALU6066 12021 8.0       9.0        10.0       11.0       12.0
1606611130 VALU6066 13020 1010.     1070.      1120.      1160.      1200.

1706609010 TABL7066  10   2          6          LIN   LIN
1706610020 TITL7066. 20FUEL CELL HX INLET TEMP (F) VS. OUTPUT KW
1706610030 TITL7066  30  REF. MC464-0115, REV B, P57
1706611100 VALU7066 10021 2.0       3.0        4.0        5.0        6.05       12.0
1706611110 VALU7066 11020 189.5     193.5      196.5      198.5      200.5      226.0

           PLOT0                              SHUTTLE SIMULATION *** WITH APPLIANCES
           PLOT21    21   67      0.0        24.          MISSION PHASE
           PLOT26                 60.        130.AVIONICS BAY GAS TEMPERATURES (F)
           PLOT2     24    2                 Av BAY 1 RETURN
           PLOT2     30    2                 Av BAY 2 RETURN
           PLOT2     36    2                 Av BAY 3 RETURN
           PLOT2     29    2                 Av BAY 1 SUPPLY
           PLOT2     35    2                 Av BAY 2 SUPPLY
           PLOT2     41    2                 Av BAY 3 SUPPLY
           PLOT23                 0.         6000.AVIONICS BAY GAS HEATLOADS (BTU/HR)
           PLOT2     24   66                 Av BAY 1
           PLOT2     30   66                 Av BAY 2
           PLOT2     36   66                 Av BAY 3
           PLOT23                 40.        90.ORBITER CREW MODULE TEMPERATURES (F)
           PLOT2     23    2                 GAS SUPPLY
           PLOT2      2    2                 GAS MIXTURE
           PLOT2      2   98                 GAS MIXTURE DEW POINT
           PLOT22                 =1500.     8000.ORBITER CREW MODULE HEATLOADS (BTU/HR)
           PLOT2      1   65                 METABOLIC
           PLOT2      2   66                 EQUIPMENT+WALL
           PLOT22                 35.        125.PAYLOAD COOLANT TEMPERATURES (F)
           PLOT2     59    2                 SUPPLY TO P/L
           PLOT2     60    2                 RETURN FROM P/L
           PLOT21    60   65      0.         30000.PAYLOAD HX HEATLOAD (BTU/HR)
           PLOT22                 50.        220.FUEL CELL COOLANT TEMPERATURES (F)
           PLOT2     65    2                 SUPPLY TO F/C
           PLOT2     66    2                 RETURN FROM F/C
           PLOT23                 0.         26.FUEL CELL POWER (KW)
           PLOT2     66   68                 TOTAL POWER (KW)
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PLOT2    66  71                    PAYLOAD POWER (KW)
PLOT2    66  70                    ORBITER POWER (KW)
PLOT21   66  65        0.   50000.,FUEL CELL WASTE HEAT (BTU/HR)
PLOT26                 40.    120.,AVIONICS BAY COOLANT TEMPERATURES (F)
PLOT2    42  21                    Av BAY 1 CP INLET
PLOT2    42   2                    Av BAY 2 CP INLET
PLOT2    40   2                    Av BAY 3 CP INLET
PLOT2    50   2                    Av BAY 1 CP EXIT
PLOT2    52   2                    Av BAY 3 CP EXIT
PLOT2    51   2                    Av BAY 2 CP EXIT
PLOT24                  0.   5000.,AVIONICS BAY CP HEATLOADS (BTU/HR)
PLOT2    45  65                    Av BAY 1,2,OR3 IMU
PLOT2    50  65                    Av BAY 1 COLDPLATE
PLOT2    51  65                    Av BAY 2 COLDPLATE
PLOT2    52  65                    Av BAY 3 COLDPLATE
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00101     1*            SUBROUTINE GPOLY1                                                    GPOLY  1
00102     2*            COMMON  /COMP/ DS(15),N,NA1,NB1,NC,NCAB,NCFL,NEXT,NEXY,NK,           GPOLY  2
00103     3*           1  NKEX,NKS,NXT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),         GPOLY  3
00103     4*           2  NSTR(18),NSUBR,NV,NVT,Y(12)                                       GPOLY  4
00104     5*            COMMON  /RARRAY/  IMAXR,R(1)                                        GPOLY  5
00105     6*            COMMON  /ECLSTI/  KCHOUT,KPRNT,KPTINV(9),KWIT,KWIT1,KWIT2,          GPOLY  6
00105     7*           1  KWIT3,KWIT4,NUFF,KSTEDY                                           GPOLY  7
00106     8*            COMMON  /KANDV/ K                                                   GPOLY  8
00107     9*            COMMON  /MISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,      GPOLY  9
00107    10*           1  LPSUB(5),MAXCI,MAXLP,MAXSLP,MAXSSI,NCOMPS,NEWDT,NLAST,NPASPD,     GPOLY 10
00107    11*           2  MINSSI,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX       GPOLY 11
00110    12*            COMMON  /CASE/ NCASE,NRSCS                                          GPOLY 12
00111    13*            COMMON  /CASE3/  NPLOTS,KRUN,PRNTO,TOUT,KPRUN,NXYZ,KPUNCH,PNCH
00112    14*            COMMON  /F21P/  CPF,RHOF,VISCF,WTMF,XKF
00113    15*            COMMON  /PROPTY/  CPO,CP(99),CPCONL,CPCONV,CPCO2,CPOIL,CPOXY,CPTC,  GPOLY 13
00113    16*           1  GAMGAS,RHOO,RHO(99),VISCO,VISC(99),VISGAS,WTHO,WTH(99),WTHCON,     GPOLY 14
00113    17*           2  WTHOIL,WTHTC,XKO,XK(99),XKGAS,XKLIQ,VISLIQ                        GPOLY 15
00114    18*            COMMON/R718P/ VIS718,CP718,XK718,RHO718,WTH718
00115    19*            COMMON  /SOURCE/  A(19),B(19),CPA,CPB,IA1,IB1,NA,NB,NPFS,NPFST(6),  GPOLY 16
00115    20*           1  NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,WTHA,WTHB,XKA,XKB              GPOLY 17
00116    21*            COMMON /POW/ POWER                                                  GPOLY 18
00117    22*            COMMON /VLOC/ IP,IS,IC,IQ,IV,IVT,IEX,INEXK                         GPOLY 19
00120    23*            COMMON/SHUTLE/PH,IPH,OLPH,IPHOLD,TIHEI,GPHN(6),NPLTS
00121    24*            LOGICAL POWER                                                       GPOLY 20
00122    25*            DIMENSION V(1),K(1)                                                 GPOLY 21
00123    26*            DIMENSION PHNAME(138)
00123    27*      C          NPLTS-NUMBER OF DIAGRAMATIC PRINTOUTS DESIRED
00124    28*            DATA NPLTS/2/                                                                *NEW
00124    29*      C                                                                                  **-2
00125    30*      C  ***************MISSION DEPENDENT**********************
00124    31*      C
00126    32*            DATA (PHNAME(I),I=1,6)/
00126    33*           16HCOUNTD,6HOWN-LA,6HUNCH  ,6H      ,6H ODH 1,6HOH OOS/
00130    34*            DATA (PHNAME(I),I=7,12)/
00130    35*           16HASCENT,6H TO IN,6HSERTIO,6HN     ,6H ODH  ,6H9M 55S/
00132    36*            DATA (PHNAME(I),I=13,18)/
00132    37*           16HCOAST ,6HTO SPO,6HGEE   ,6H      ,6H ODH 1,6H4M 23S/
00134    38*            DATA (PHNAME(I),I=19,24)/
00134    39*           16HCIRCUL,6HARIZAT,6HION.  ,6H      ,6H ODH 1,6H2M 24S/
00136    40*            DATA (PHNAME(I),I=25,30)/
00136    41*           16HPHASIN,6HG      ,6H      ,6H      ,6H 0H 3,6H5M 59S/
00140    42*            DATA (PHNAME(I),I=31,36)/
00140    43*           16HHEIGHT,6H ADJUS,6HT      ,6H      ,6H  3H 5,6H4M 30S/
00142    44*            DATA (PHNAME(I),I=37,42)/
00142    45*           16HRENDEZ,6HVOUS   ,6H      ,6H      ,6H  1H 3,6H7M 23S/
00144    46*            DATA (PHNAME(I),I=43,48)/
00144    47*           16HDOCKIN,6HG      ,6H      ,6H      ,6H  4H 2,6H5M 25S/
00146    48*            DATA (PHNAME(I),I=49,54)/
00146    49*           16HLSO RE,6HFURBIS,6HH OPER,6HATIONS,6H 20H 0,6HOH OOS/
00150    50*            DATA (PHNAME(I),I=55,60)/
00150    51*           16HSEPARA,6HTION   ,6H      ,6H      ,6H  2H 4,6HOH 10S/
00152    52*            DATA (PHNAME(I),I=61,66)/
00152    53*           16HORBIT ,6HTRANSF,6HER     ,6H      ,6H  2H 1,6HOH 50S/
00154    54*            DATA (PHNAME(I),I=67,72)/
00154    55*           16HSORTIE,6H OPERA,6HTIONS ,6HDAY 1 ,6H 24H 0,6HOH OOS/
00156    56*            DATA (PHNAME(I),I=73,78)/
00156    57*           16HSORTIE,6H OPERA,6HTIONS ,6HDAY 2 ,6H 24H 0,6HOH OOS/
00160    58*            DATA (PHNAME(I),I=79,84)/
00160    59*           16HSORTIE,6H OPERA,6HTIONS ,6HDAY 3 ,6H 24H 0,6HOH OOS/
00162    60*            DATA (PHNAME(I),I=85,90)/
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00162    61*          16HSORTIE,6H OPERA,6HTIONS ,6HDAY 4 ,6H 24H 0,6H0H 00S/
00164    62*          DATA (PHNAME(I),I=91,96)/
00164    63*          16HSORTIE,6H OPERA,6HTIONS ,6HDAY 5 ,6H  2H 0,6H0H 00S/
00166    64*          DATA (PHNAME(I),I=97,102)/
00166    65*          16HPHASIN,6HG      ,6H       ,6H       ,6H 14H 1,6H0H 25S/
00170    66*          DATA (PHNAME(I),I=103,108)/
00170    67*          16HDEORBI,6HT      ,6H       ,6H       ,6H      4,6H3H 28S/
00172    68*          DATA (PHNAME(I),I=109,114)/
00172    69*          16HENTRY ,6H400K T,6HO 47K ,6HFT,    ,6H      3,6H0H 12S/
00174    70*          DATA (PHNAME(I),I=115,120)/
00174    71*          16HDESCEN,6HT 47K ,6HTO 16K,6H FT,   ,6H       ,6H3H 16S/
00176    72*          DATA (PHNAME(I),I=121,126)/
00176    73*          16HFINAL ,6HAPPROA,6HCH 16K,6H FT TO,6H TD      ,6H2H 39S/
00200    74*          DATA (PHNAME(I),I=127,132)/
00200    75*          16HROLLOU,6HT.     ,6H       ,6H       ,6H      ,6H2H 00S/
00202    76*          DATA (PHNAME(I),I=133,138)/
00202    77*          16HPOSTLA,6HNDING ,6HTO GSE,6H CONN ,6H      ,6H3H 00S/
00204    78*          EQUIVALENCE (V,K)                                          GPOLY 22
00205    79*          LOGICAL  SIGADY                                            GPOLY 23
00206    80*
00206    81*
00206    82*     C         CALCULATE INTEGRATED AVG PROPERTIES FOR FREON 21
00206    83*               IF(NPASS.EQ.0)  GO TO 10
00210    84*               IF(NPFST(1).NE.2 .OR. NPFT(1).NE.2)  GO TO 5
00212    85*               CALL F21(A(2),R(2))
00213    86*               CPA=CPF
00214    87*               RHOA=RHOF
00215    88*               VISCA=VISCF
00216    89*               WTHA=WTHF
00217    90*               XKA=XKF
00220    91*          5    CONTINUE
00221    92*               IF(NPFST(1).NE.1.OR.NPFT(1).NE.1)  GO TO 6
00223    93*               CALL R718(A(2),R(2))
00224    94*               CPA=CP718
00225    95*               RHOA=RHO718
00226    96*               VISCA=VIS718
00227    97*               WTHA=WTH718
00230    98*               XKA=XK718
00231    99*          6    CONTINUE
00232   100*               IF(NSFST(1).NE.2 .OR. NSFT(1).NE.2)  GO TO 10
00234   101*               CALL F21(B(2),R(2))
00235   102*               CPB=CPF
00236   103*               RHOB=RHOF
00237   104*               VISCB=VISCF
00240   105*               WTHB=WTHF
00241   106*               XKB=XKF
00242   107*         10    CONTINUE
00243   108*               IF(NSFST(1).NE.1.OR.NSFT(1).NE.1)  GO TO 11
00245   109*               CALL R718(B(2),R(2))
00246   110*               CPB=CP718
00247   111*               RHOB=RHO718
00250   112*               VISCB=VIS718
00251   113*               WTHB=WTH718
00252   114*               XKB=XK718
00253   115*         11    CONTINUE
00254   116*
00254   117*     C         DETERMINE MISSION PHASE
00254   118*               PH=VALUE(1000.,TIME,0.01) + 0.00001
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00255                IPH=IFIX(PH)
00256 *DIAGNOSTIC* THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00256                IF(PH.EQ.OLPH)  GO TO 999
00256          C        PRINT A,B, R ARRAY AFTER COMP SOLUTION FOR FIRST PASS IN NEW PHASE
00260                IF(KSYPAS.EQ.0)  GO TO 99999
00260          C        PRINT RESULTS AT END OF LAST MISSION PHASE
00262                TIME1=TIME-DTIME
00263                WRITE(6,99998)  KSYPAS,TIME1,OLPH
00270          99998 FORMAT(/////1H0,13HSYSTEM PASS =,I5,9X,6HTIME =,F9.1,4H SEC,9X,
00270               1    15HMISSION PHASE =,F5.1)
00271                IF(KCHOUT.EQ.0)  GO TO 9021
00273           9000 WRITE(6,9010)
00275           9010 FORMAT(//,5H COMP,3X,4HR(1),8X,4HR(2),8X,5HR(20),7X,5HR(21),
00275               27X,5HR(65),7X,5HR(66),7X,5HR(67),2X)
00276                ICNT=NCOMPS
00277                DO 9020 II=1,ICNT
00302                IK=K(2*II-1)
00303                IF(K(IK+1).LE.0) GO TO 9020
00305                R1=VV(II,1)
00306                R2=V(IP+2)
00307                R20=V(IS+1)
00310                R21=V(IS+2)
00311                R65=0.0
00312                R66=0.0
00313                R67=0.0
00314                IVZ=INEXK-IV
00315                IF(IVZ.GT.0) R65=V(IV+1)
00317                IF(IVZ.GT.1) R66=V(IV+2)
00321                IF(IVZ.GT.2) R67=V(IV+3)
00323                WRITE(6,7030) II,R1,R2,R20,R21,R65,R66,R67
00335           9030 FORMAT(1H ,I3,1X,10(G12.5))
00336                IF(.NOT.(II.EQ.2.OR.II.EQ.82)) GO TO 9050
00340                WRITE(6,9040) V(IV+34)
00343           9040 FORMAT(1H+,88X,6HR(98)=,G12.5)
00344                GO TO 9020
00345           9050 IF(II.NE.66) GO TO ?
00347                WRITE(6,9060) V(IV+4),V(IV+5)
00353           9060 FORMAT(1H+,88X,6HR(68)=,G12.5,3X,6HR(69)=,G12.5)
00354           9020 CONTINUE
00356           9021 CONTINUE
00357                CALL PRTIME
00360                CALL ARSGAS
00361                CALL ARSH20
00362                CALL FCL
00363                IF(NPLOTS.GT.0)  CALL TAPEIT
00365                CALL SV(PH,21,67)
00366          99999 CONTINUE
00367                OLPH=PH
00370                IPHOLD=IFIX(OLPH)
00371                IPN=6*IPHOLD-6
00372                DO 9080 J=1,6
00375                OPHN(J)=PHNAME(J+IPN)
00376           9080 CONTINUE
00376          C        DETERMINE NUMBER OF MEN IN ORBITER CABIN
00400                NMEN=IFIX(VALUE(1001,PH,0.0)+.1)
00401                CALL SK(NMEN,1,16)
00401          C        FIND MAIN CABIN HEAT LOAD  (DOES NOT INCLUDE METABOLIC)
00402                QCAB=VALUE(1002,PH,0.0)
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00403    176*          CALL SV(QCAB,2,66)
00403    177*    C          FIND AVIONICS BAY AIR HEAT LOADS (DOES NOT INCLUDE FAN)
00404    178*          QAV1=VALUE(1024,PH,0,1/3,-601.
00405    179*          QAV2=QAV1
00406    180*          QAV3=QAV1
00407    181*          CALL SV(QAV1,29,66)
00410    182*          CALL SV(QAV2,30,66)
00411    183*          CALL SV(QAV3,36,66)
00411    184*    C          DETERMINE INTERCHANGER WATER FLOW
00412    185*          WIC=VALUE(1033,PH,0,0)
00413    186*          CALL SV(WIC,33,1)
00413    187*    C          FIND IHU LOAD FOR EACH WATER LOOP CIRCUIT
00414    188*          QIHU=VALUE(1040,PH,0,0)
00415    189*          QIHU1=QIHU/3.0
00416    190*          QIHU2=QIHU1
00417    191*          QIHU3=QIHU1
00420    192*          CALL SV(QIHU1,45,65)
00421    193*          CALL SV(QIHU2,44,65)
00422    194*          CALL SV(QIHU3,40,65)
00422    195*    C          DETERMINE WATER LOOP PUMP FLOWS AND POWER
00423    196*          WWPMP=VALUE(1043,PH,0,0)
00423    197*    C          INITIALIZE WATER LOOP FLOWS
00424    198*          W3320=WWPMP-WIC
00425    199*          CALL SV(W3320,33,20)
00426    200*          CALL SV(WIC,61,1)
00427    201*          WPWATT=695./3.413
00430    202*          CALL SV(WPWATT,43,85)
00430    203*    C          FIND AVIONICS BAY COLDPLATE HEAT LOADS  (CONVERT TO WATTS)
00431    204*          QAVCP1=VALUE(1050,PH,0,01/10.239
00432    205*          QAVCP2=QAVCP1
00433    206*          QAVCP3=QAVCP1
00434    207*          CALL SV(QAVCP1,50,66)
00435    208*          CALL SV(QAVCP2,51,66)
00436    209*          CALL SV(QAVCP3,52,66)
00436    210*    C          FIND LOW TEMP PAYLOAD HEAT LOAD
00437    211*          QLTPL=VALUE(1060,PH,0,0)
00440    212*          CALL SV(QLTPL,60,65)
00440    213*    C          DETERMINE FREON PUMP FLOWS AND POWER
00441    214*          WFPMP=VALUE(1062,PH,0,0)
00442    215*          FPWATT=WFPMP/5000.*(2700./3.413)
00443    216*          CALL SV(FPWATT,62,85)
00443    217*    C          DETERMINE MID BODY COLDPLATE FLOW
00444    218*          WMIDCP=0.05[illegible]*WFPMP
00445    219*          CALL SV(WMIDCP,63,1)
00445    220*    C          DETERMINE MID-BODY COLDPLATE HEAT LOAD  (CONVERT TO WATTS)
00446    221*          QMIDCP=VALUE(1064,PH,0,0)/3.413
00447    222*          CALL SV(QMIDCP,64,66)
00450    223*
00450    224*    C          DETERMINE ORBITER REQUIRED POWER (KW)
00450    225*          OBFCKW=VALUE(2066,PH,0,0)
00450    226*    C          DETERMINE PAYLOAD REQUIRED POWER (KW)
00451    227*          PLFCKW=VALUE(3066,PH,0,0)
00451    228*    C          DURING ON-ORBIT PHASES ASSUME ORBITER POWER IS SHARED BY
00451    229*    C          2 FUEL CELLS AND ALL PAYLOAD POWER IS DRAWN FORM A DEDICATED
00451    230*    C          PAYLOAD FUEL CELL
00452    231*          OBFCK=OBFCKW/2.0
00453    232*          PLFCK=PLFCKW
00454    233*          IF((PH.GT.11 .AND. (PH.LE.16) GO TO 6615
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00454    234*      C          AVERAGE POWER BETWEEN ALL FUEL CELLS DURING NON ON-ORBIT PHASES
00456    235*                 QBFCK=(QBFCKW+PLFCKW)/3.0
00457    236*                 PLFCK=QBFCK
00460    237*       **15      CONTINUE
00461    238*                 QBH2O=8.94*VALUE(4066,QBFCK,0,0)*QBFCK
00462    239*                 QBFCQ=VALUE(5066,QBFCK,0,0)
00463    240*                 QBFCW=VALUE(6066,QBFCK,0,0)
00464    241*                 QBFCT=VALUE(7066,QBFCK,0,0)
00465    242*                 PLH2O=8.94*VALUE(4066,PLFCK,0,0)*PLFCK
00466    243*                 PLFCQ=VALUE(5066,PLFCK,0,0)
00467    244*                 PLFCW=VALUE(6066,PLFCK,0,0)
00470    245*                 PLFCT=VALUE(7066,PLFCK,0,0)
00470    246*      C          ASSUME 140 DEG F RETURN TEMP FROM F/C HX; CP(FC-40)=0.27;
00470    247*      C          SOLVE FOR FLOW THRU HX
00471    248*                 QBFCW1=QBFCQ/(0.27*(QBFCT-140.0))
00472    249*                 QBFCW2=AMIN1(QBFCW,QBFCW1)
00473    250*                 PLFCW1=PLFCQ/(0.27*(PLFCT-140.0))
00474    251*                 PLFCW2=AMIN1(PLFCW,PLFCW1)
00474    252*      C          SOLVE FOR TOTAL FC-40 FLOW THRU F/C HX AND STORE VALUE
00475    253*                 W650I=2.0*QBFCW2+PLFCW2
00476    254*                 CALL SV(W650I,65,1)
00476    255*      C          SOLVE FOR AVERAGE MIXED INLET TEMP OF TOTAL FC-40 FLOW TO F/C HX
00477    256*                 T660Q2=(2.0*QBFCW2*QBFCT+PLFCW2*PLFCT)/W650I
00500    257*                 CALL SV(T660Q2,66,2)
00501    258*                 FCH2O=2.0*QBH2O+PLH2O
00502    259*                 CALL SV(FCH2O,66,69)
00502    260*      C          ESTIMATE FUEL CELL KW FROM HEAT LOAD DATA AND CHECK WITH TABLE DATA
00503    261*                 QLKW=.001*(QAVCP1+QAVCP2+QAVCP3+VV(8,9))+VV(26,9)+VV(32,9)
00503    262*               3           +QH1DCP+QAFTCP
00503    263*               1           +VV(38,9)+WPWATT+FPWATT + (QCAB+QPCAIR+QHXIN+QAV)
00503    264*               2           +QAV2+QAV3+Q(MU)/3.413  ) + PLFCW
00504    265*                 CALL SV(QLKW,66,67)
00505    266*                 FCKW=QBFCKW+PLFCKW
00506    267*                 CALL SV(FCKW,66,68)
00507    268*                 CALL SV(PLFCKW,66,71)
00510    269*                 CALL SV(QBFCKW,66,70)
00510    270*      C          DETERMINE FUEL CELL WASTE HEAT
00511    271*                 QFCWH=2.0*QBFCQ+PLFCQ
00512    272*                 CALL SV(QFCWH,66,65)
00513    273*
00513    274*      C          FIND HYDRAULIC LOOP HEAT LOSS
00513    275*                 QHYD1=VALUE(1069,PH,0,0)
00514    276*                 CALL SV(QHYD1,69,65)
00515    277*                 QHYD2=VALUE(1071,PH,0,0)
00516    278*                 CALL SV(QHYD2,71,65)
00516    279*      C          DETERMINE OXYGEN RESTRICTOR + ENVIRONMENT HEAT LOAD
00517    280*                 QO2R=VALUE(1075,PH,0,0)
00520    281*                 CALL SV(QO2R,75,65)
00520    282*      C          DETERMINE ARS I/C FREON FLOW FROM DIVERTER VALVE
00521    283*                 WFIC=VALUE(1076,PH,0,0)
00522    284*                 CALL SV(WFIC,76,1)
00522    285*      C          FIND HIGH TEMP PAYLOAD HX HEAT LOAD
00523    286*                 QHTPL=VALUE(1079,PH,0,0)
00524    287*                 CALL SV(QHTPL,79,65)
00524    288*      C          DETERMINE NUMBER OF MEN IN PAYLOAD CABIN
00525    289*                 NMENP=IFIX(VALUE(1081,PH,0,0)+.1)
00526    290*                 CALL SK(NMENP,81,16)
00526    291*      C          FIND HEAT LOAD FOR PAYLOAD AIR FROM MAIN CABIN
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00527    292*          QPLAIR=VALUE(1082,PH,0,0)
00530    293*          CALL SV(QPLAIR,82,66)
00530    294*     C         FIND MAIN CABIN HEAT LOADS TO BE ADDED BEFORE HX INLET
00530    295*     C         (DOES NOT INCLUDE LIOH OR FAN LOADS)
00531    296*          QHXIN=VALUE(1084,PH,0,0)
00532    297*          CALL SV(QHXIN,84,65)
00532    298*     C         SET GSE HX GLYCOL FLOW
00533    299*          WGSE=0.0
00533    300*     C
00533    301*     C  ***********MISSION DEPENDENT**********
00533    302*     C
00534    303*          IF(IPH.EQ.1)  WGSE=10000.
00536    304*          CALL SV(WGSE,91,1)
00536    305*     C         DETERMINE FLASH EVAPORATOR BYPASS FREON FLOW
00537    306*          WFEBYP=0.7969*WFPHP*VALUE(1093,PH,0,0)
00540    307*          CALL SV(WFEBYP,93,20)
00540    308*     C         DETERMINE AFT BODY COLDPLATES FLOW
00541    309*          WAFTCP=0.1309*WFPHP
00542    310*          CALL SV(WAFTCP,96,20)
00542    311*     C         DETERMINE AFT-BODY COLDPLATE HEAT LOAD (CONVERT TO WATTS)
00543    312*          QAFTCP=VALUE(1097,PH,0,0)/3.413
00544    313*          CALL SV(QAFTCP,97,66)
00545    314*
00545    315*     C         DETERMINE PAYLOAD HX FLOWS FOR CMIN/CMAX=1.0
00545    316*          WLTPL=WFPHP-WFEBYP-WAFTCP-WFIC
00546    317*          CALL SV(WLTPL,59,1)
00547    318*          CALL SV(WFPHP,78,1)
00547    319*     C         SET UP FREON LOOP FLOW THRU LOW TEMP PAYLOAD HX
00550    320*          CALL SV(WLTPL,76,20)
00551    321*
00551    322*      999 CONTINUE
00552    323*
00552    324*
00552    325*    2     IF(IN.NE.2) GO TO 250
00552    326*     C CALC REQUIRED O2 MAKEUP FOR SS CABIN SIM                          *NEW
00554    327*          R(165)=R(160)+VV(1,60)                                         *NEW
00554    328*     C  CALC N2 MAKEUP FOR SS MODEL                                      *NEW
00555    329*          R(166)=R(161)                                                  *NEW
00556    330*      250 CONTINUE                                                       *NEW
00557    331*    22    IF(IN.NE.22) GO TO 2250                                       *NEW
00557    332*     C ***** REF **** R REUHONT, RI,  10/18/74                          *NEW
00561    333*          W3=A(1)*R(72)/CPA                                              *NEW
00562    334*          W3=AMAX1(W3,A(1))                                              *NEW
00563    335*          R(66)=19.137*W3**0.592                                         *NEW
00564    336*     2250  CONTINUE                                                     *NEW
00565    337*    29    IF(N.NE.29.AND.N.NE.35.AND.N.NE.41)  GO TO 2950                *NEW
00565    338*     C ***** REF **** R REUHONT, RI,  10/18/74                          *NEW
00567    339*          R(66)=6.4*A(1)**.588                                           *NEW
00570    340*     2950  CONTINUE                                                     *NEW
00571    341*    55    IF(N.NE.55) GO TO 5550                                        *NEW
00573    342*          IF(B(1).GT.3000.) GO TO 5510                                   *NEW
00573    343*     C         DUAL FREON LOOP OPERATION                                *NEW
00573    344*     C ***** REF **** R REUHONT, RI,  10/18/74                          *NEW
00575    345*          R(66)=450.37*B(1)**.34                                         *NEW
00576    346*          GO TO 5550                                                     *NEW
00576    347*     C         SINGLE FREON LOOP OPERATION                              *NEW
00577    348*     5510  R(66)=225.51*B(1)**.402                                      *NEW
00600    349*     5550  CONTINUE                                                     *NEW
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00601    350*      60   IF(N.NE.60)  GO TO 6050                                  *=34
00603  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00603    351*           IF(R(65).EQ.0.0)  A(2)=VV(76,2)
00605    352*     6050  CONTINUE
00606    353*     59    IF(N.NE.59) GO TO 5950                                   *NEW
00608    354*     C***** REF **** R REVHONT, RI;  10/18/74                       *NEW
00610    355*           R(66)=5.1832*B(1)**.886                                  *NEW
00611    356*     5950  CONTINUE                                                 *NEW
00612    357*     65    IF(N.NE.65)  GO TO 6550                                  *NEW
00614    358*           CMIN=A(1)*CPA                                            *NEW
00615    359*           CMAX=B(1)*CPB                                            *NEW
00616    360*           IF(CMIN.LT.CMAX)  GO TO 6510                             *NEW
00620    361*           X=CMIN                                                   *NEW
00621    362*           CMIN=CMAX                                                *NEW
00622    363*           CMAX=X                                                   *NEW
00623    364*     6510  CONTINUE                                                 *NEW
00623    365*     C           ASSUME 3 FUEL CELL OPERATION FOR UA CALC           *NEW
00624    366*           R(66)=20.730*A(1)**0.540                                 *NEW
00624    367*     C           CALC COUNTERFLOW HX EFFECTIVENESS                  *NEW
00625    368*           E1=EXP(-R(66)/CMIN*(1.0-CMIN/CMAX))                      *NEW
00626    369*           R(67)=(1.0-E1)/(1.0-CMIN/CMAX*E1)                        *NEW
00626    370*     C           IF B(1).GT.3000 = ASSUME DUAL FREON LOOP OPERATION (2HX IN SERIES)  *NEW
00627    371*           IF(B(1).LE.3000.) GO TO 6550                             *NEW
00631    372*           RR=CMIN/CMAX                                             *NEW
00632    373*           EOVR=R(67)/RR                                            *NEW
00633    374*           X=EOVR*(1.-.25*EOVR)                                     *NEW
00634    375*           IF(RR.LE..5) X=R(67)*(2.-R(67))                          *NEW
00636    376*           R(67)=X                                                  *NEW
00637    377*     6550  CONTINUE                                                 *NEW
00640    378*     66    IF(N.NE.66)  GO TO 6650
00642  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00642    379*           IF(R(65).EQ.0.0)  A(2)=VV(62,02)
00644    380*     6650  CONTINUE
00645    381*     69    IF(N.NE.69)  GO TO 6950
00647  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00647    382*           IF(R(65).EQ.0.0)  A(2)=VV(67,02)
00651    383*     6950  CONTINUE
00652    384*     71    IF(N.NE.71)  GO TO 7150
00654  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00654    385*           IF(R(65).EQ.0.0)  A(2)=VV(58,02)
00656    386*     7150  CONTINUE
00657    387*     79    IF(N.NE.79)  GO TO 7950
00661  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00661    388*           IF(R(65).EQ.0.0)  A(2)=VV(77,02)
00663    389*     7950  CONTINUE
00664    390*     80    IF(N.NE.80)  GO TO 8050
00664    391*     C           FIND PAYLOAD GAS FLOW FROM MAIN CABIN
00666    392*           PLCFM=VALUE(1080,PH,0.0)
00667    393*           R(20)=PLCFM*RHOA*60.0
00670    394*     8050  CONTINUE
00671    395*     82    IF(N.NE.82)  GO TO 8250
00671    396*     C CALC REQUIRED O2 MAKEUP FOR 55 CABIN STH                     *NEW
00673    397*           R(165)=R(160)+VV(81,68)                                  *NEW
00674    398*     8250  CONTINUE                                                 *=46
00675    399*     90    IF(N.NE.90) GO TO 9055                                   *NEW
00675    400*     C***** REF **** R REVHONT, RI;  10/18/74                       *NEW
00677    401*           R(66)=420.87*B(1)**.243                                  *NEW
00700    402*     9055  CONTINUE                                                 *NEW
00701    403*
00701    404*
00701    405*
00701    406*           RETURN                                        GPOLY407
00702    407*           END                                           GPOLY408
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00101          SUBROUTINE GPOLY2                                                GPOLY  1
00103          COMMON  /COMP/ DS(15),N,NA1,NB1,NC,NCAB,NCFL,NEXT,NEXY,NK,        GPOLY  2
00103         1  NKEX,NKS,NKT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),      GPOLY  3
00103         2  NSTR(18),NSUBR,NV,NVT,Y(12)                                    GPOLY  4
00104          COMMON  /ECLST1/  KCHOUT,KPRNT,KPTINV(4),KWIT,KWIT1,KWIT2,
00104         1  KWIT3,KWIT4,NUFF,KSTEDY
00105          COMMON  /RARRAY/  IMAXR,R(1)                                     GPOLY  5
00106          COMMON  /KANDV/ K                                                GPOLY  6
00107          COMMON  /MISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,   GPOLY  7
00107         1  LPSUM(5),MAXCI,MAXLP,MAXSLP,MAXSSI,NCOMPS,NEWDT,NLAST,NPASPD,  GPOLY  8
00107         2  MINSSI,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX    GPOLY  9
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00110     12*           COMMON  /CASE/ NCASE,NRSCS                                        GPOLY 10
00111     13*           COMMON  /CASE3/  NPLOTS,KRUN,PRNTO,TOUT,KPRUN,NXYZ,KPUNCH,PNCH
00112     14*           COMMON  /F21P/  CPF,RHOF,VISCF,#THF,XKF
00113     15*           COMMON  /PROPTY/  CPO,CP(99),CPCONL,CPCONV,CPCO2,CPOIL,CPOXY,CPTC,GPOLY 11
00113     16*          1  GAMGAS,RHOO,RHO(99),VISCO,VISC(99),VISGAS,#THO,#TH(99),#THCON,  GPOLY 12
00113     17*          2  #THOIL,#THTC,XKO,XK(99),XKGAS,XKLIQ,VISLIQ                     GPOLY 13
00114     18*           COMMON  /SOURCE/  A(9),B(9),CPA,CPB,IA1,IB1,NA,NB,NPFS,NPFST(6),GPOLY 14
00114     19*          1  NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,#THA,#THB,XKA,XKB          GPOLY 15
00115     20*           COMMON /POW/ POWER                                               GPOLY 16
00116     21*           COMMON/SHUTLE/PH,IPH,OLPH,IPHOLD,TIMET,OPHN(6),NPLTS
00117     22*           COMMON /VLOC/ IP,IS,IC,IQ,IV,IVT,IEX,INEXK
00120     23*           DATA NX/1/
00122     24*          .LOGICAL POWER                                                    GPOLY 17
00123     25*           DIMENSION V(1),K(1)                                              GPOLY 18
00124     26*           EQUIVALENCE (V,K)                                                GPOLY 19
00125     27*           LOGICAL  STEADY                                                  GPOLY 20
00125     28*      C
00125     29*      C  INITIALIZE HAFCEE COUNTER AT START OF TRANSIENT
00125     30*      C
00126     31*           IF(.NOT.STEADY.AND.KSYPAS.EQ.0) NX=1
00126     32*      C      SHUT OFF ONE PASS PRINT OUT                                    *=32
00130     33*     22    IF(N.NE.22) GO TO 2250
00132     34*           CALL SK(100,22,10)
00133     35*     2250  CONTINUE
00134     36*           IF (N.NE.36)  GO TO 3650
00134     37*      C         STORE AB BAY STRUCTURE TEMP IN COLDPLATE COMP
00136     38*           CALL SV(R(8),52,60)
00137     39*     3650  CONTINUE
00140     40*      56   IF(N.NE.56 .AND. N.NE.57)  GO TO 5657
00142     41*           R(65)=0.0
00143     42*           R(70)=0.0
00143     43*      C         SUBLIMATOR STEADY STATE SIMULATION
00143     44*      C         ASSUME A HX WITH CMIN/CMAX=0.0,  CMAX=ICE SIDE AT 32 F
00143     45*      C
00143     46*      C  ***************MISSION DEPENDENT**********************
00143     47*      C
00144     48*           IF(IPH.NE.2.AND.IPH.NE.3.AND.IPH.NE.18.AND.IPH.NE.19)  GO TO 5657
00146     49*           IF(A(1).LE.0.0)  GO TO 5657
00150     50*           CMIN=A(1)*CPA
00151     51*           R(68)=1.0-EXP(-R(67)/CMIN)
00152     52*           R(65)=CMIN*R(68)*(32.0-A(2))
00153     53*           R(2)=A(2)+R(65)/CMIN
00154     54*           R(70)=-R(65)/R(69)
00155     55*     5657  CONTINUE
00156     56*      59   IF(N.NE.59)  GO TO 5950
00160     57*           IF(NSTR(16).EQ.0.AND..NOT.STEADY) GO TO 5950
00160     58*      C         FORCE CONVERGENCE OF HEAT LOAD AND HEAT TRANSFER FOR STEADY STATE
00162     59*           QLOAD=VV(60,65)
00163  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00163     60*           IF(QLOAD.EQ.0.0)  GO TO 5950
00165     61*           IF(ABS(1.0-R(65)/QLOAD).GT.0.03)  NEXT=60
00167     62*     5950  CONTINUE
00170     63*      65   IF(N.NE.65)  GO TO 6550
00172     64*           IF(NSTR(16).EQ.0.AND..NOT.STEADY) GO TO 6550
00172     65*      C         FORCE CONVERGENCE OF HEAT LOAD AND HEAT TRANSFER FOR STEADY STATE
00174     66*           QLOAD=VV(66,65)
00175  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00175     67*           IF(QLOAD.EQ.0.0)  GO TO 6550
```

```
00177     68*            IF(ABS(1.0-R(65)/QLOAD).GT.0.03)  NEXT=66
00201     69*       6550 CONTINUE
00202     70*         68 IF(N.NE.68)  GO TO 6850
00204     71*            IF(NSTR(16).EQ.0.AND..NOT.STEADY) GO TO 6850
00204     72*       C         FORCE CONVERGENCE OF HEAT LOAD AND HEAT TRANSFER FOR STEADY STATE
00206     73*            QLOAD=-VV(69,65)
00207   *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00207     74*            IF(QLOAD.EQ.0.0)  GO TO 6850
00211     75*            IF(ABS(1.0-R(65)/QLOAD).GT.0.03)  NEXT=69
00213     76*       6850 CONTINUE
00214     77*         70 IF(N.NE.70) GO TO 7080
00216     78*            IF(NSTR(16).EQ.0.AND..NOT.STEADY) GO TO 7050
00216     79*       C         FORCE CONVERGENCE OF HEAT LOAD AND HEAT TRANSFER FOR STEADY STATE
00220     80*            QLOAD=-VV(71,65)
00221   *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00221     81*            IF(QLOAD.EQ.0.0) GO TO 7050
00223     82*            IF(ABS(1.0-R(65)/QLOAD).GT.0.03)  NEXT=71
00225     83*       7050 CONTINUE
00226     84*
00226     85*       C         SET UP RADIATOR RETURN TEMP AND FLOW WHEN RADIATOR LOOP IS
00226     86*       C         NOT SOLVED
00226     87*            CALL SV(R(1),99,1)
00227     88*            TFOUT=40.
00227     89*       C
00227     90*       C  ***************MISSION DEPENDENT**********************
00227     91*       C
00230     92*            IF(IPH.LT.4.OR.IPH.GT.17) TFOUT=R(2)
00232     93*            CALL SV(TFOUT,99,2)
00233     94*       7080 CONTINUE
00234     95*         72 IF(N.NE.72)  GO TO 7280
00236     96*            R(65)=0.0
00237     97*            R(69)=0.0
00237     98*       C         NH3 EVAPORATOR SIMULATION
00237     99*       C
00237    100*       C  ***************MISSION DEPENDENT**********************
00237    101*       C
00240    102*            IF(IPH.LT.19)  GO TO 7273
00242    103*            IF(A(1).LE.0.0)  GO TO 7273
00244    104*            CA=A(1)*CPA
00245    105*            QREQD=CA*(A(2)-40.0)
00246    106*            UAREQD=6.0*QREQD/70.0
00247    107*            EFF=1.0
00250    108*            R(2)=40.0
00251    109*            IF(UAREQD.LE.R(67)) GO TO 7210
00251    110*       C         DEGRADED PERFORMANCE -- NOT ENOUGH UA TO HANDLE HEAT LOAD
00253    111*            R(2)=(CA*A(2)-5.0*R(67))/(CA+R(67)/6.0)
00254    112*            EFF=R(67)/UAREQD
00255    113*       7210 R(65)=CA*(R(2)-A(2))
00256    114*            R(69)=-R(65)/(R(68)*EFF)
00257    115*       7273 CONTINUE
00260    116*       7280 CONTINUE
00261    117*
00261    118*         78 IF(N.NE.78)  GO TO 7850
00263    119*            IF(NSTR(16).EQ.0.AND..NOT.STEADY) GO TO 7850
00263    120*       C         FORCE CONVERGENCE OF HEAT LOAD AND HEAT TRANSFER FOR STEADY STATE
00265    121*            QLOAD=VV(79,65)
00266   *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00266    122*            IF(QLOAD.EQ.0.0)  GO TO 7850
```

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00270    123*          IF(ABS(1.0-R(65)/QLOAD).GT.0.03)  NEXT=79
00272    124*     7850 CONTINUE
00273    125*          IF(N.NE.82)  GO TO 8250
00273    126*     C SET RETURN GAS TEMP FROM PAYLOAD COMPARTMENT                    *NEW
00275    127*          R(2)=75.                                                     *NEW
00276    128*          R(66)=A(1)*CPA*(R(2)-A(2))
00277    129*     8250 CONTINUE
00300    130*     84   IF(N.NE.84) GO TO 8450
00302    131*          IF(NSTR(16).EQ.0.AND..NOT.STEADY) GO TO 8450
00304    132*          TCAB2=TCAB1
00305    133*          TCAB1=VV(2,104)
00306    134*          TTOL=2.0/FLOAT(ITER2*2)
00307    135*          TTOL=AMAX1(0.05,TTOL)
00310    136*          IF(ABS(TCAB1-TCAB2).GT.TTOL) NEXT=8
00312    137*     8450 CONTINUE
00313    138*     90   IF(N.NE.90) GO TO 9050
00313    139*     C       SET GSE FREON OUTLET TEMP IF PHASE 1
00315    140*          R(65)=0.0
00315    141*     C
00315    142*     C  ****************MISSION DEPENDENT**********************
00315    143*     C
00316    144*          IF(IPH.NE.1) GO TO 9050
00320    145*          R(2)=35.0
00321    146*          A(2)=VV(99,2)
00322    147*          CALL F2(A(2),R(2))
00323    148*          R(65)=A(1)*CPF*(R(2)-A(2))
00324    149*     9050 CONTINUE
00325    150*     92   IF(N.NE.92)  GO TO 9250
00325    151*     C         FLASH EVAPORATOR SIMULATION
00327    152*          R(65)=0.0
00330    153*          R(69)=0.0
00331    154*          IF(A(1).LE.0.0)  GO TO 9250
00333    155*          IF(A(2).LE.40.0) GO TO 9250
00333    156*     C
00333    157*     C  ****************MISSION DEPENDENT**********************
00333    158*     C
00335    159*          IF(IPH.EQ.1.OR.IPH.GE.20) GO TO 9250
00337    160*          CA=A(1)*CPA
00340    161*          QREQD=CA*(A(2)-40.0)
00341    162*          EFF=1.0
00342    163*          UAREQD=QREQD/10.0
00343    164*          R(2)=40.0
00344    165*          IF(UAREQD.LE.R(67))  GO TO 9210
00344    166*     C         DEGRADED PERFORMANCE => NOT ENOUGH UA TO HANDLE HEAT LOAD
00346    167*          R(2)=(CA*A(2)+30.0*R(67))/(CA+R(67))
00347    168*          EFF=R(67)/UAREQD
00350    169*     9210 R(65)=CA*(R(2)-A(2))
00351    170*          R(69)=R(65)/(R(68)*EFF)
00352    171*     9250 CONTINUE
00353    172*
00353    173*
00353    174*          IF(N.NE.NLAST)  GO TO 99999
00355    175*
00355    176*          ITER2=ITER2+1
00355    177*     C         RESET SYSTEM TIME INCREMENT
00356    178*          DTIME=1.                                                     *NEW
00357    179*                                                                       ***1
00357    180*
```

```
00357                 IF(KCHOUT.EQ.0)  GO TO 99998
00357         C            PRINT SCHEMATICS AFTER EVERY SYSTEM PASS
00361                 TIME1=TIME
00362                 CALL ARSGAS
00363                 CALL ARSH20
00364                 CALL FCL
00365           99998 CONTINUE
00366
00366
00366         C          FIND SPLIT RATIO FOR CABIN TEMP CONTROL VALVE
00366                 TCAB=VV(2,104)
00367                 TSET=70.0
00370                 IF(KSTEDY.EQ.0.AND..NOT.STEADY) GO TO 8635
00372                 CALL HAFCEE(SR86,TSET,TCAB,0.,.6786,.05,NX,SRL,SRH,NSTR)
00373                 GO TO 8650
00374           8635  CONTINUE
00375                 SR86=VV(86,65)
00376  *DIAGNOSTIC* THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00376                 IF(SR86.EQ.0.0.AND.TCAB.GT.TSET) GO TO 8650
00400                 IF(KSYPAS.EQ.0) GO TO 8636
00402                 IF(TCAB.LT.TSET .AND. TCABO.LT.TSET)  GO TO 8640
00404           8636  CONTINUE
00405                 ITER1=0
00406                 CALL ESTIM(SR86,TCAB,TSET,SR860,TCABO,TSETO,1.0,ITER1,NSTR(1))
00407                 GO TO 8645
00410           8640  SR86=AMAX1(0.05,1.005*SR86)
00411           8645  CONTINUE
00412                 SR86=AMIN1(SR86,0.6786)
00413           8650  CONTINUE
00414                 CALL SV(SR86,86,65)
00415
00415                 IF(KSYPAS.EQ.0)  GO TO 99999
00417                 IF(MOD(KSYPAS,15).NE.0) GO TO 99999                          *NEW
00417         C            PERFORM 10 SYSTEM PASSES IN EACH MISSION PHASE THEN **  ***1
00417         C                      2. FORCE 1 MORE SYTEM PASS AT END OF OLD MISSION
00417         C                         PHASE TO SUPPLY PLOT DATA
00421                 PH1=PH+1.0
00422                 DTIME=VALUE(999,PH1,0.0)-TIME-DTIME
00423                 ITER2=1
00424                 IF(NPLOTS.GT.0)  CALL TAPE(T)
00426                 NX=1
00427           99999 CONTINUE
00430                                                                        GPOLY194
00430                 RETURN                                                 GPOLY195.
00431                 END

      END OF COMPILATION:      6 DIAGNOSTICS.
   GPOLY2       SYMBOLIC                          19 SEP 74  13:33:21   0  03161240  14   254  (DELETED)
   GPOLY2  CODE  RELOCATABLE                      19 SEP 74  13:33:21   1  03170204  84     1  (DELETED)
                                                                        0  03170330  14    74
```

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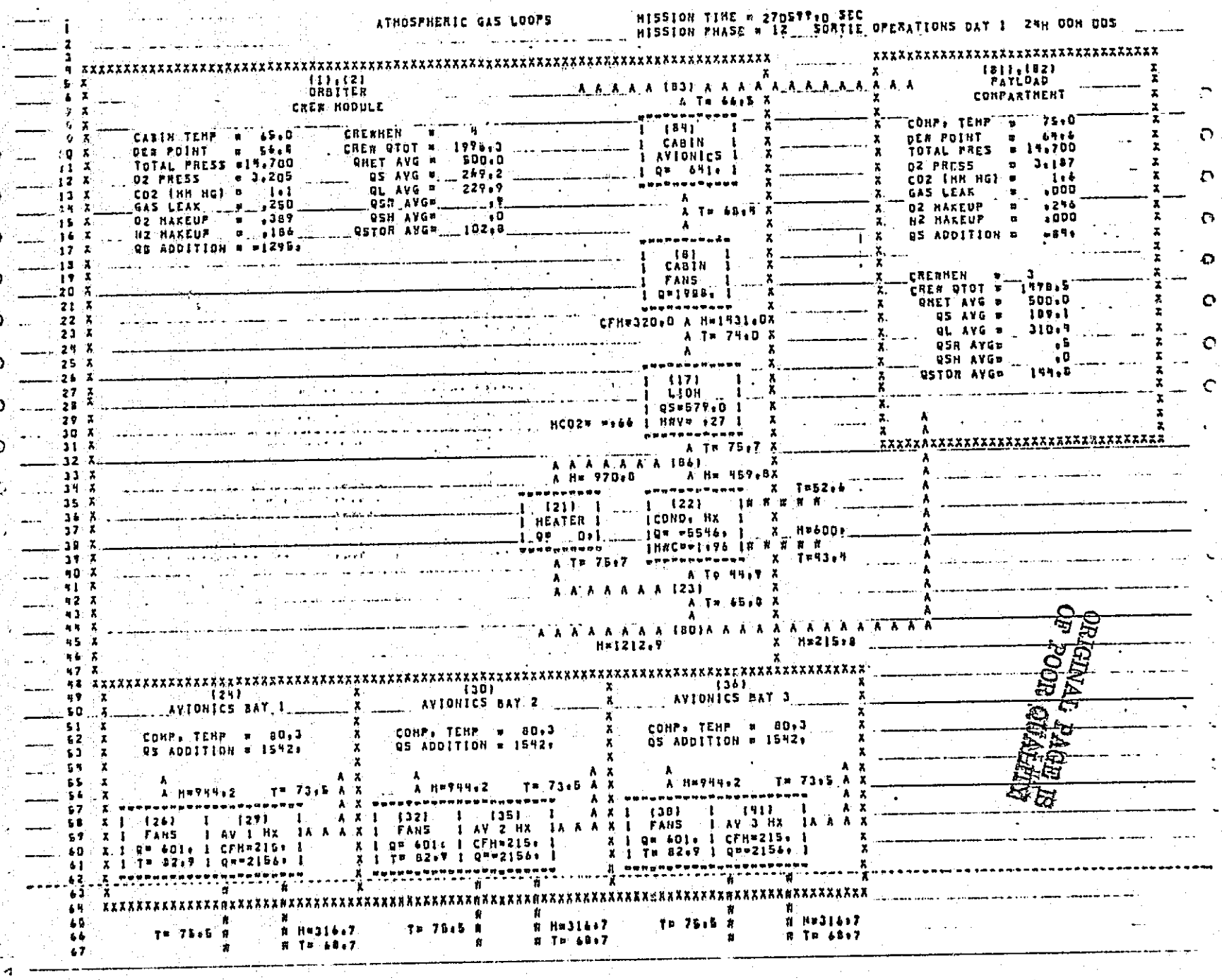
APPENDIX C

OUTPUT G-189A DATA FOR SHUTTLE ORBITER MODEL-BASIC UNMODIFIED CASE



C-2

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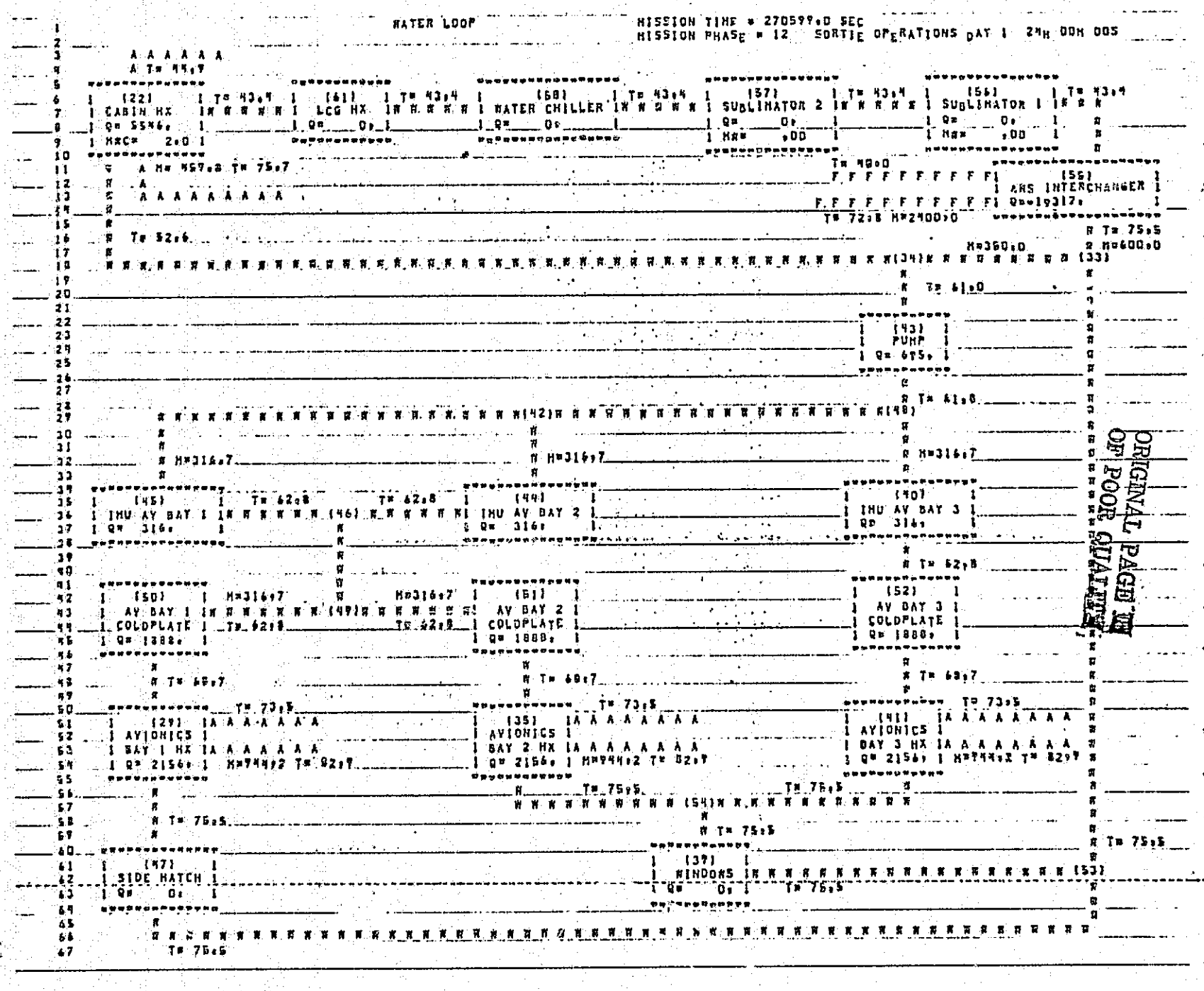

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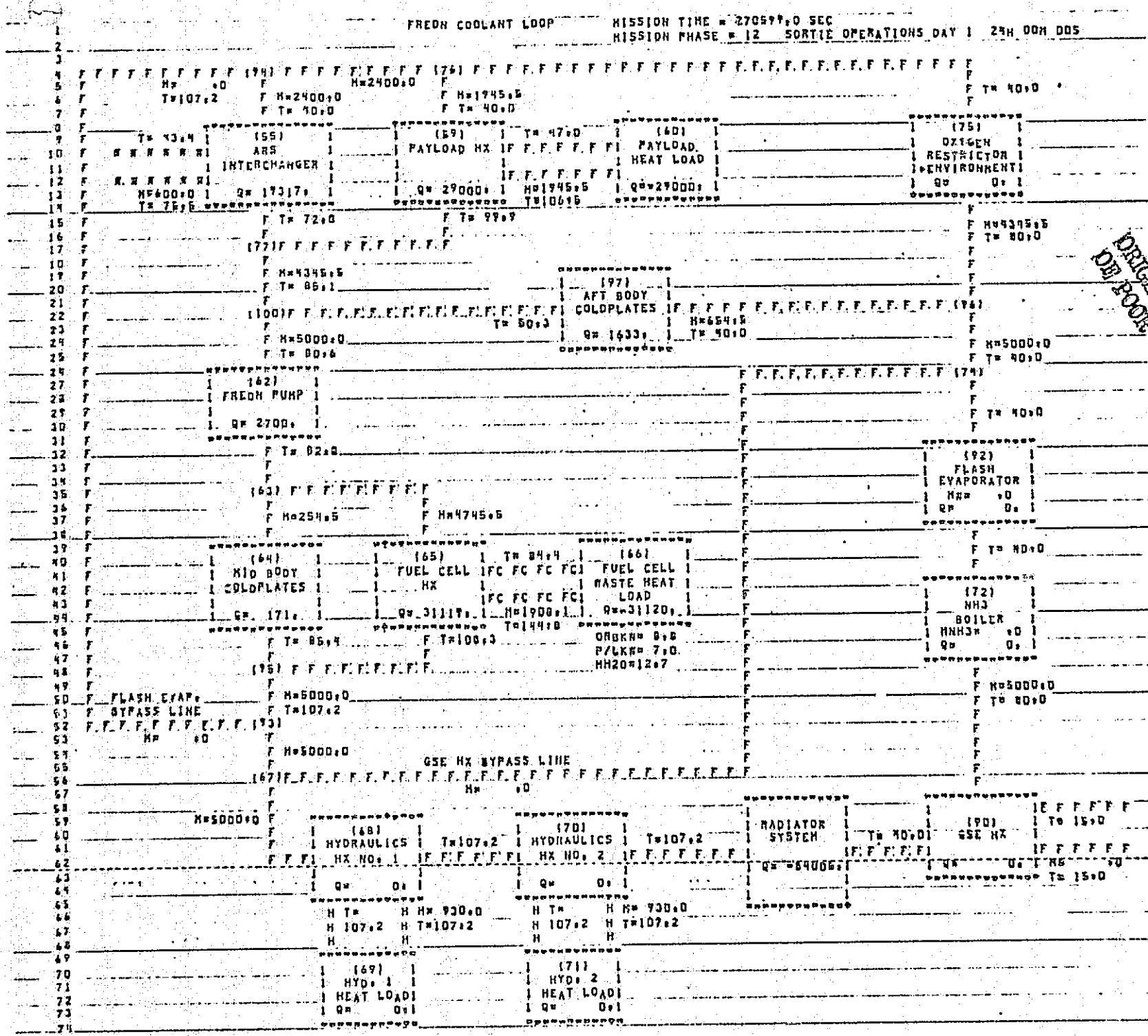
C-3



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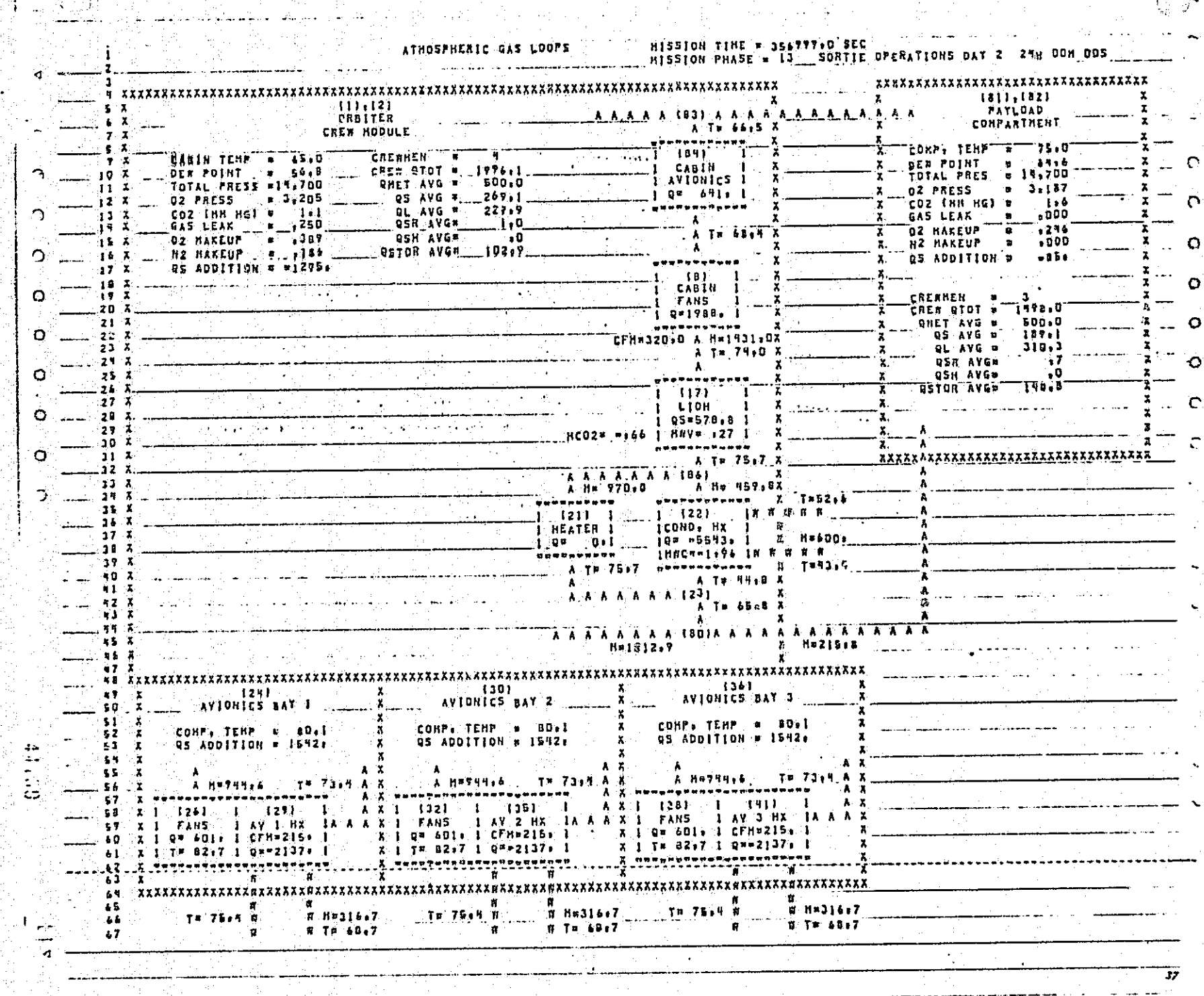
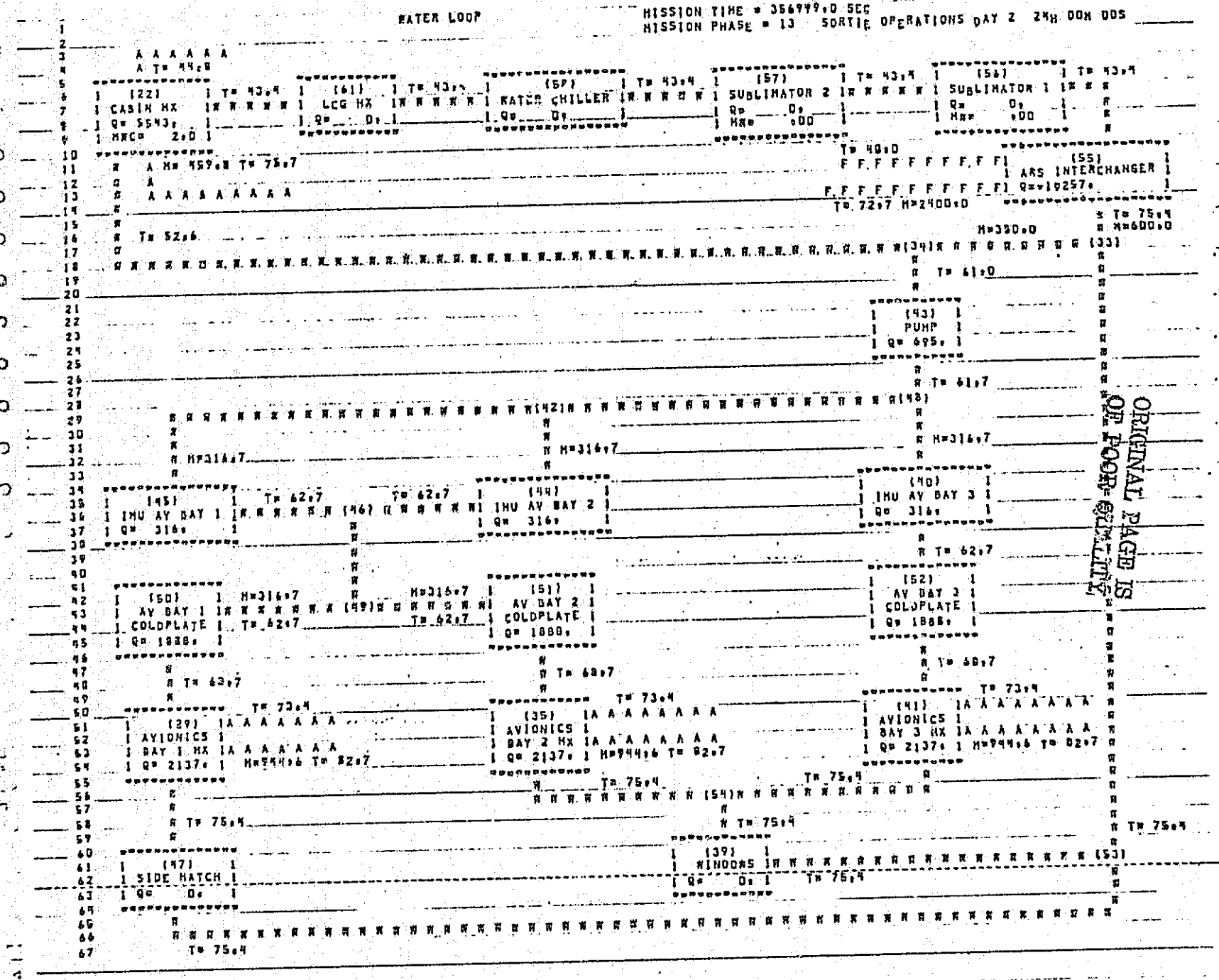
C-4


ATMOSPHERIC GAS LOOPS
MISSION TIME = 356777.0 SEC
MISSION PHASE = 13 SORTIE OPERATIONS DAY 2 24H DOM DOS
(1),(2)
ORBITER
CREW MODULE
CABIN TEMP = 65.0
DEW POINT = 56.8
TOTAL PRESS =14.700
O2 PRESS = 3.205
CO2 (MM HG) = 1.1
GAS LEAK = .250
O2 MAKEUP = .309
N2 MAKEUP = .184
QS ADDITION = -1295.
CREWMEN = 4
CREW QTOT = 1996.1
QMET AVG = 500.0
QS AVG = 269.1
QL AVG = 227.9
QSR AVG= 1.0
QSH AVG= .0
QSTOR AVG= 103.7
(83)
A T= 66.5
(84)
CABIN
AVIONICS
Q= 691.
A T= 68.4
(8)
CABIN
FANS
Q=1988.
CFM=320.0
A H=1931.0
A T= 74.0
(17)
LIOH
QS=570.8
HNV= .27
A T= 75.7
HCO2= .66
(86)
A H= 970.0
A H= 959.8
T=52.4
(21)
HEATER
Q= 0.
(22)
COND. HX
Q= -5543.
HMC=-1.96
H=600.
T=93.6
A T= 75.7
A T= 44.8
(23)
A T= 65.8
(80)
H=1312.9
H=218.8
(81),(82)
PAYLOAD
COMPARTMENT
COMP. TEMP = 75.0
DEW POINT = 59.6
TOTAL PRES = 14.700
O2 PRESS = 3.187
CO2 (MM HG) = 1.6
GAS LEAK = .000
O2 MAKEUP = .296
N2 MAKEUP = .000
QS ADDITION = -86.
CREWMEN = 3
CREW QTOT = 1492.0
QMET AVG = 500.0
QS AVG = 189.1
QL AVG = 318.3
QSR AVG= .7
QSH AVG= .0
QSTOR AVG= 140.8
(24)
AVIONICS BAY 1
COMP. TEMP = 80.1
QS ADDITION = 1542.
A H=944.6
T= 73.4
(26)
FANS
Q= 601.
T= 82.7
(29)
AV 1 HX
CFM=215.
Q=-2137.
(30)
AVIONICS BAY 2
COMP. TEMP = 80.1
QS ADDITION = 1542.
A H=944.6
T= 73.4
(32)
FANS
Q= 601.
T= 82.7
(35)
AV 2 HX
CFM=215.
Q=-2137.
(36)
AVIONICS BAY 3
COMP. TEMP = 80.1
QS ADDITION = 1542.
A H=944.6
T= 73.4
(38)
FANS
Q= 601.
T= 82.7
(41)
AV 3 HX
CFM=215.
Q=-2137.
T= 75.4
H=316.7
T= 60.7
T= 75.4
H=316.7
T= 69.7
T= 75.4
H=316.7
T= 68.7



C-6

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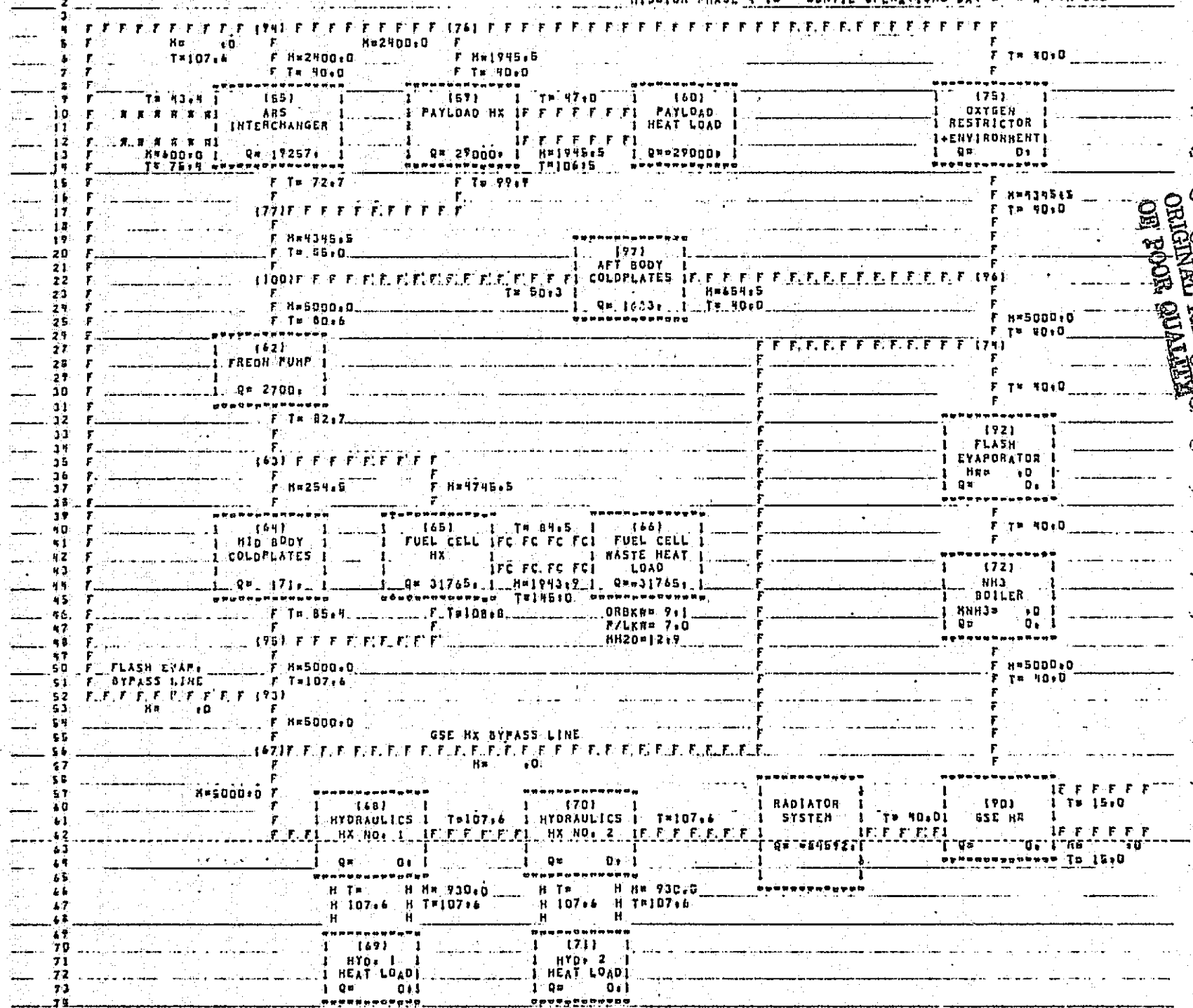

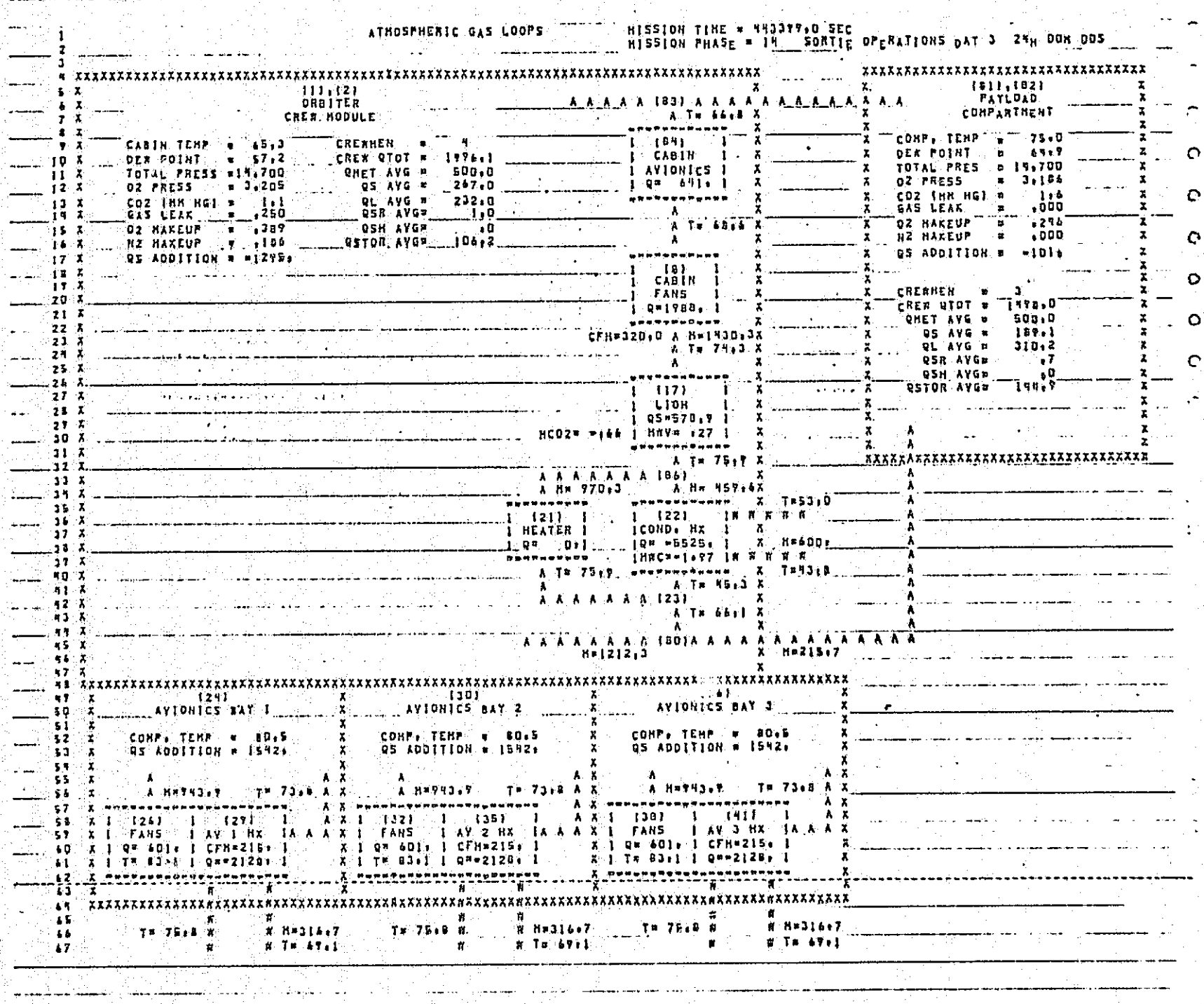

C-8

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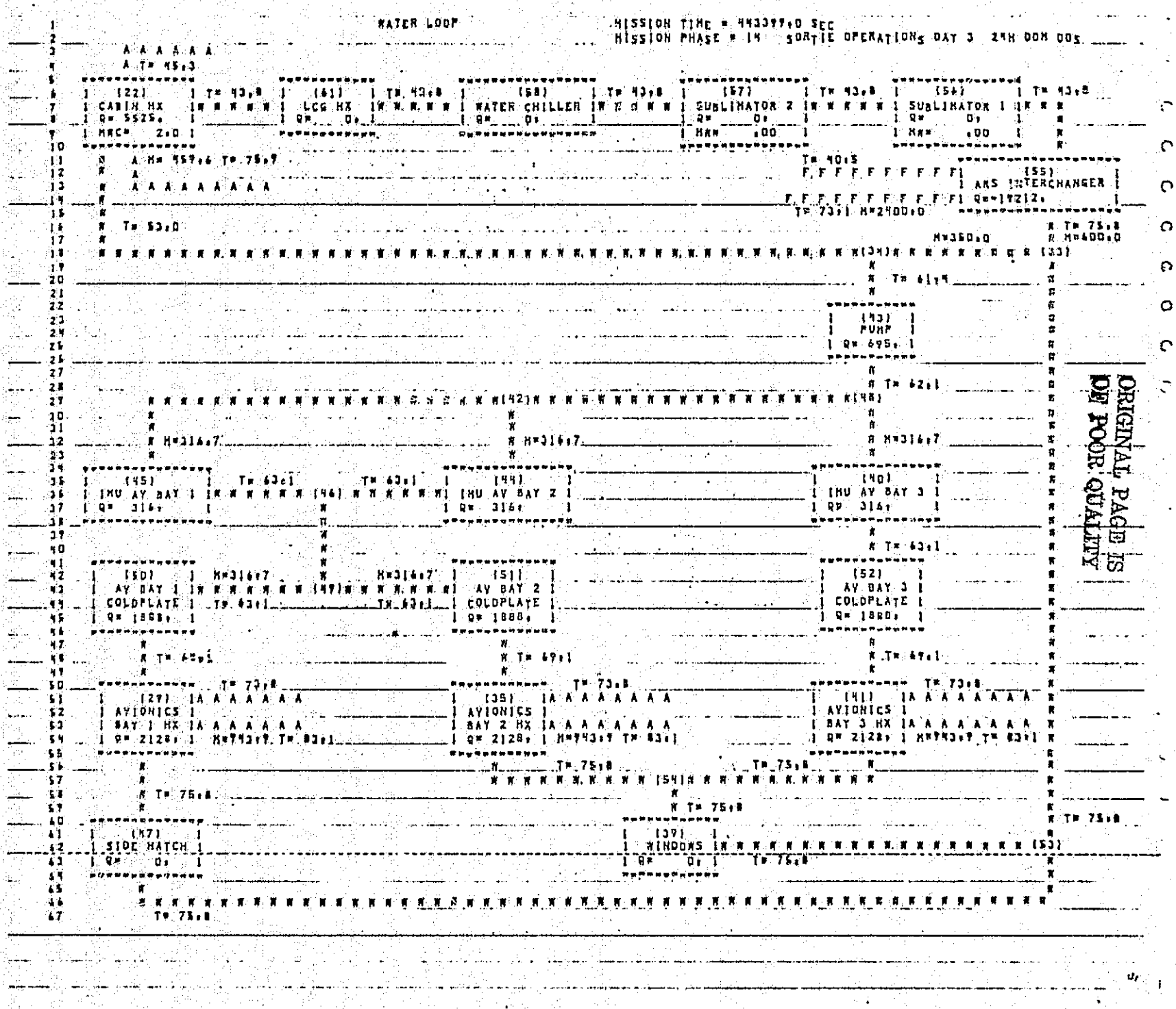

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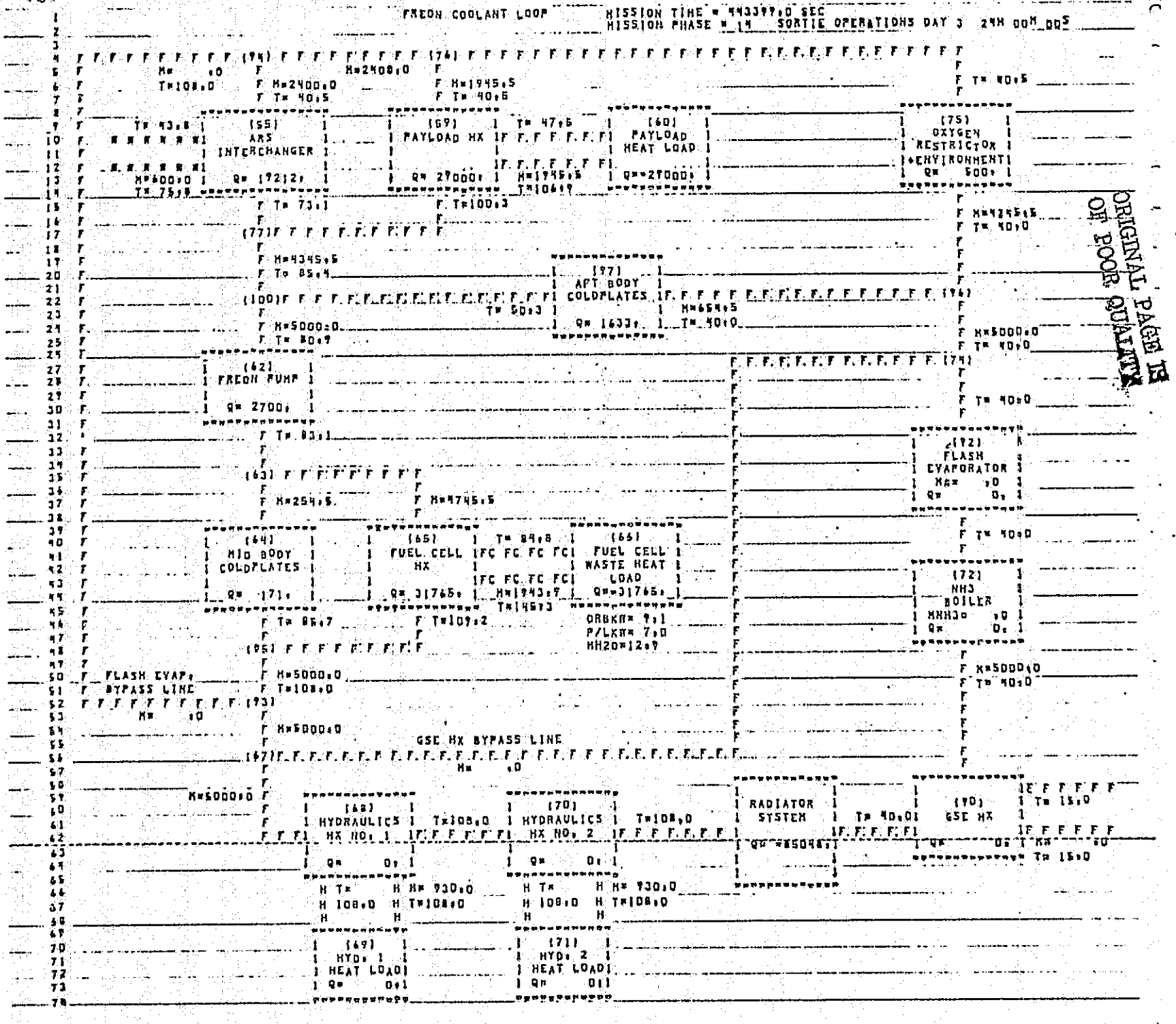
C-9

D2-118571-2



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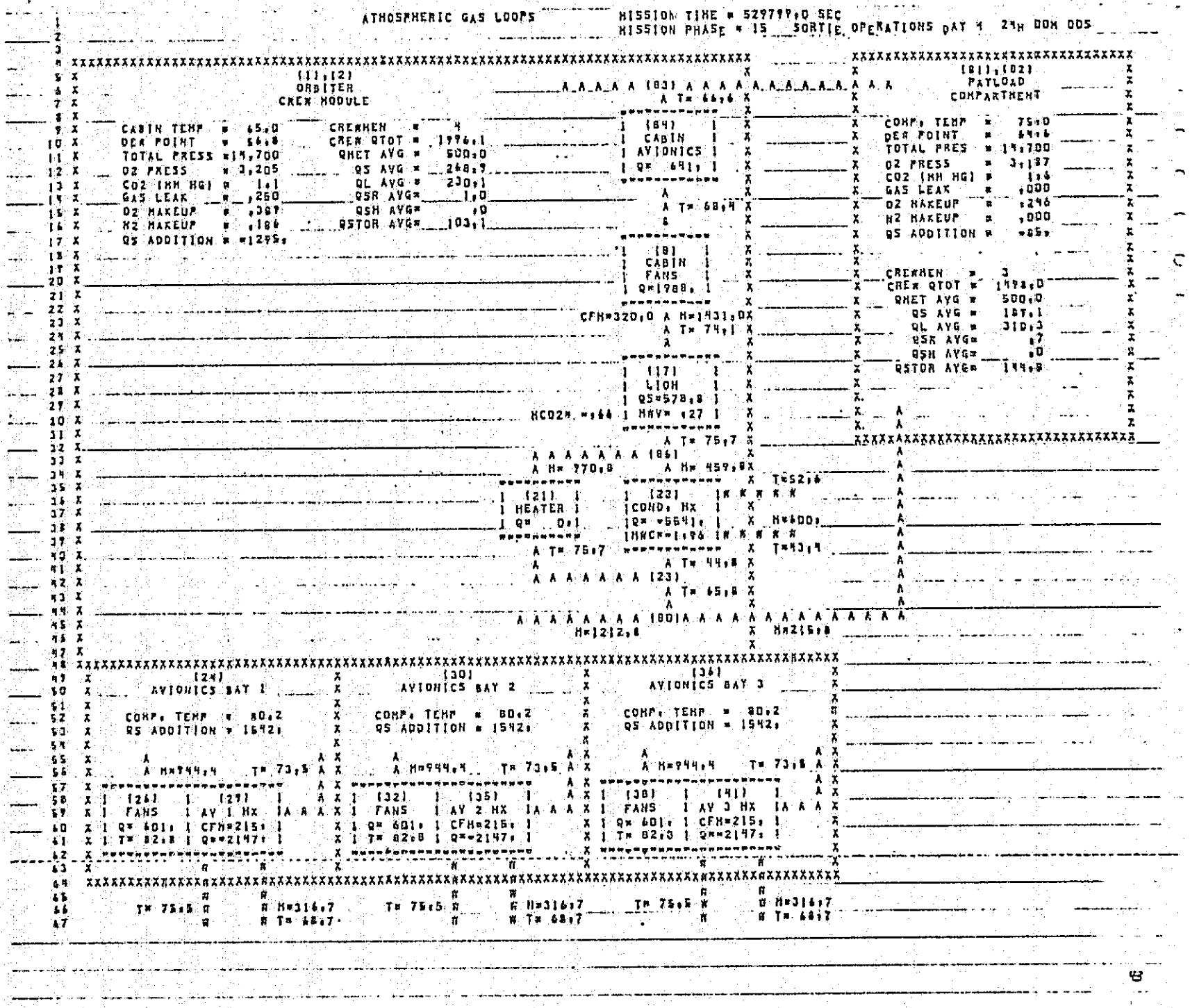
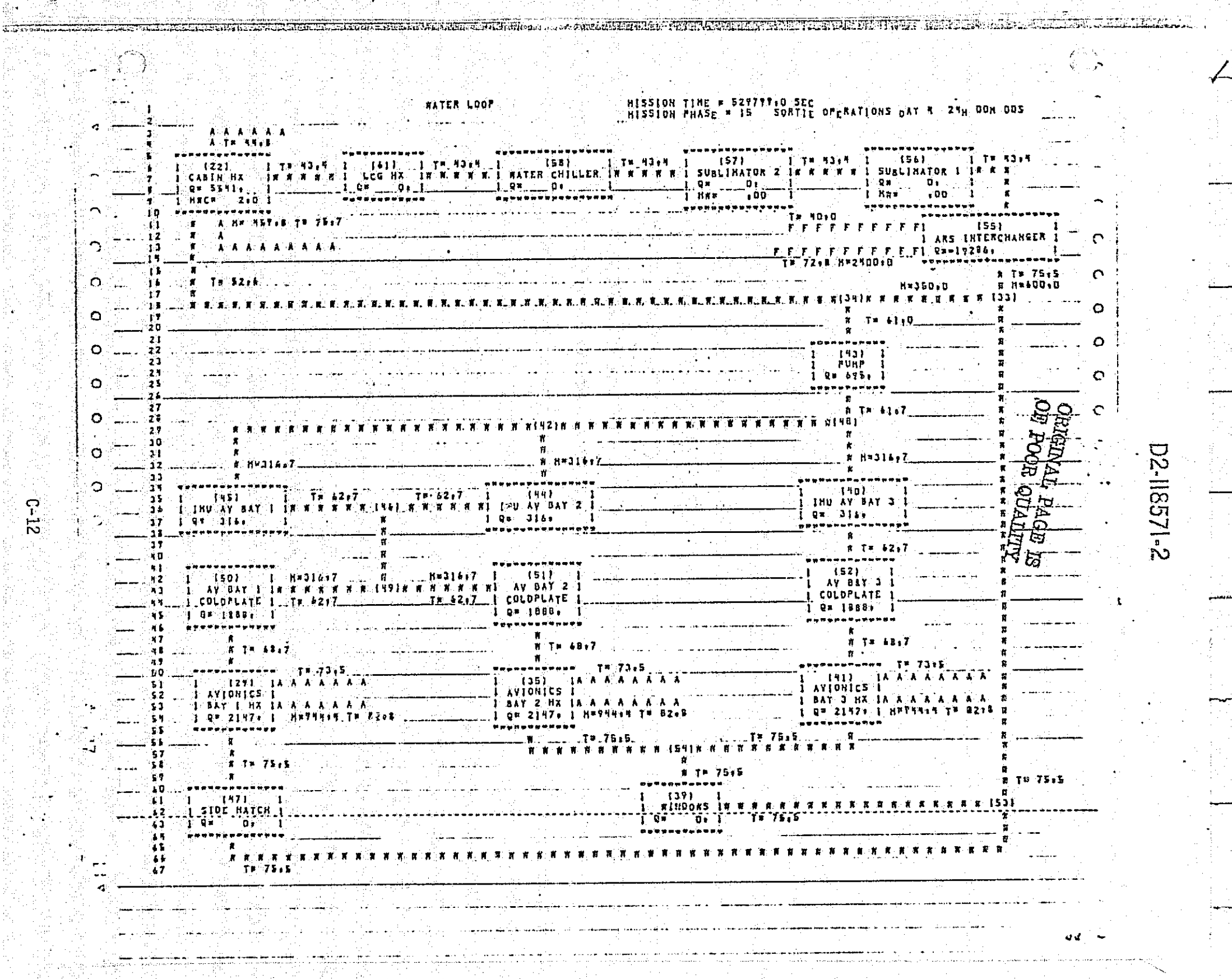
C-10



C-11

D2-118571-2


WATER LOOP
MISSION TIME = 529777.0 SEC
MISSION PHASE = IS SORTIE OPERATIONS DAY X 24H DOM DOS
(22) CABIN HX
(61) LCG HX
(58) WATER CHILLER
(57) SUBLIMATOR 2
(56) SUBLIMATOR 1
(55) ARS INTERCHANGER
(43) PUMP
(45) IMU AV BAY 1
(44) IMU AV BAY 2
(40) IMU AV BAY 3
(50) AV BAY 1 COLDPLATE
(51) AV BAY 2 COLDPLATE
(52) AV BAY 3 COLDPLATE
(29) AVIONICS BAY 1 HX
(35) AVIONICS BAY 2 HX
(41) AVIONICS BAY 3 HX
(47) SIDE HATCH
(39) WINDOWS
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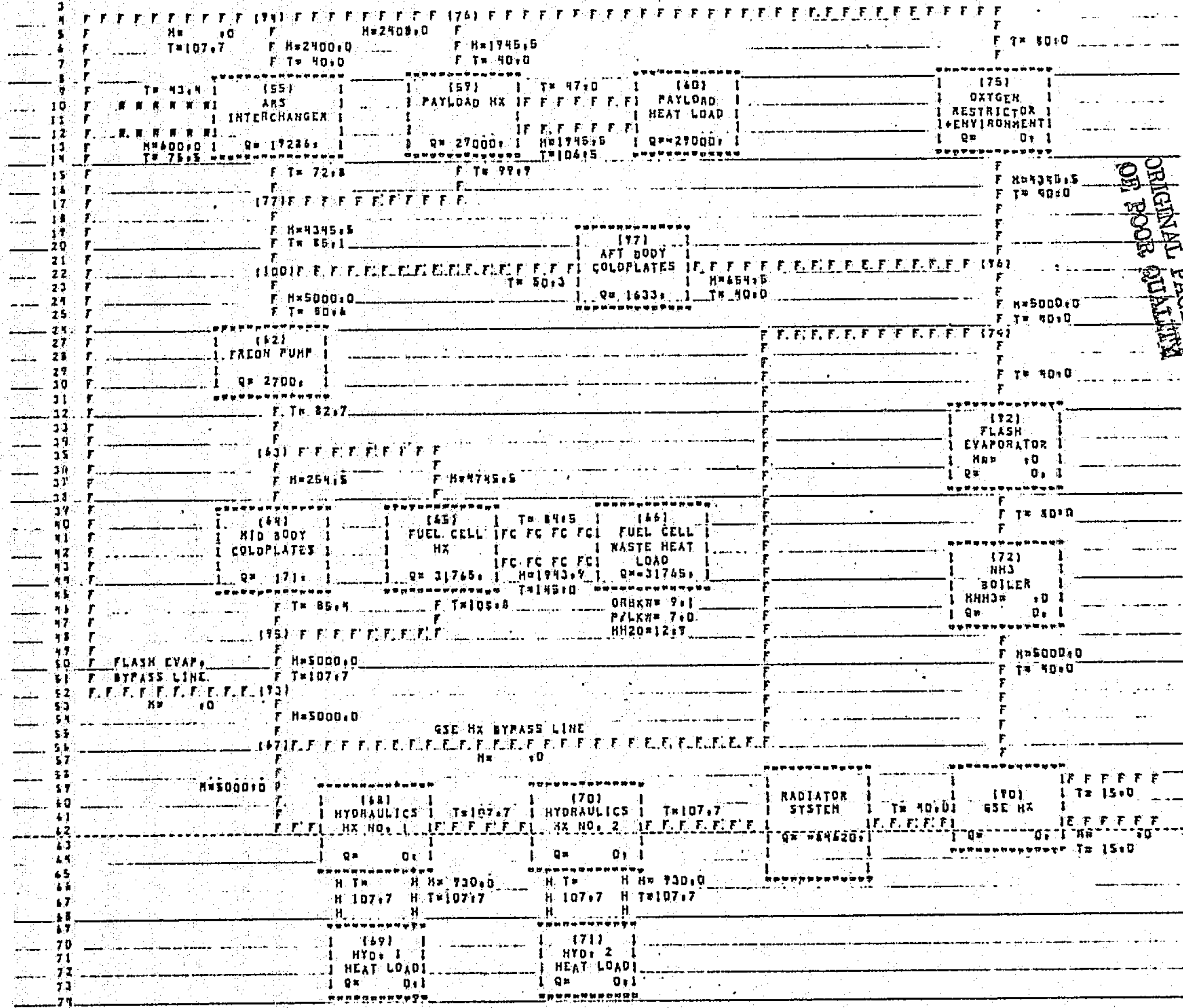
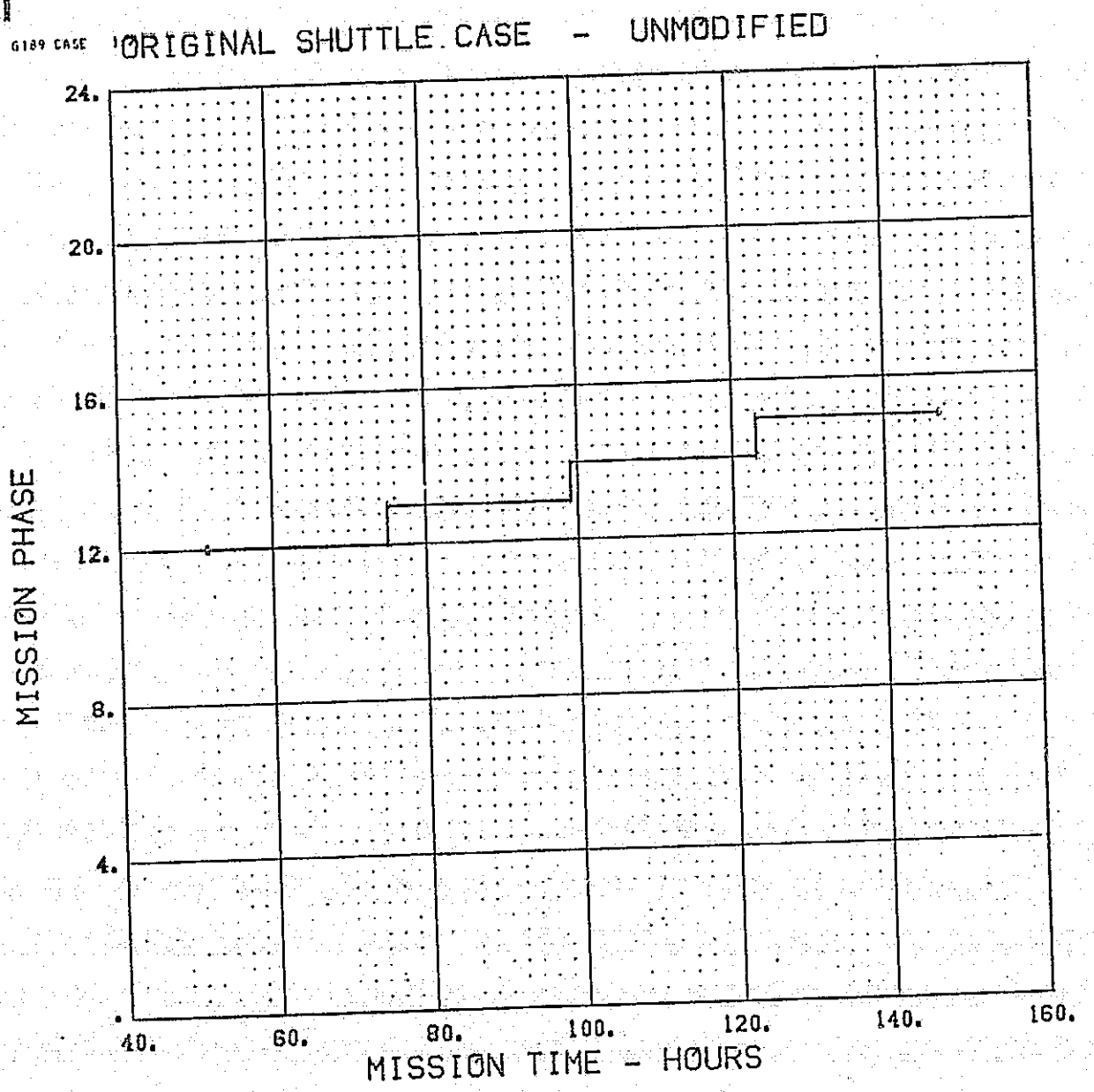
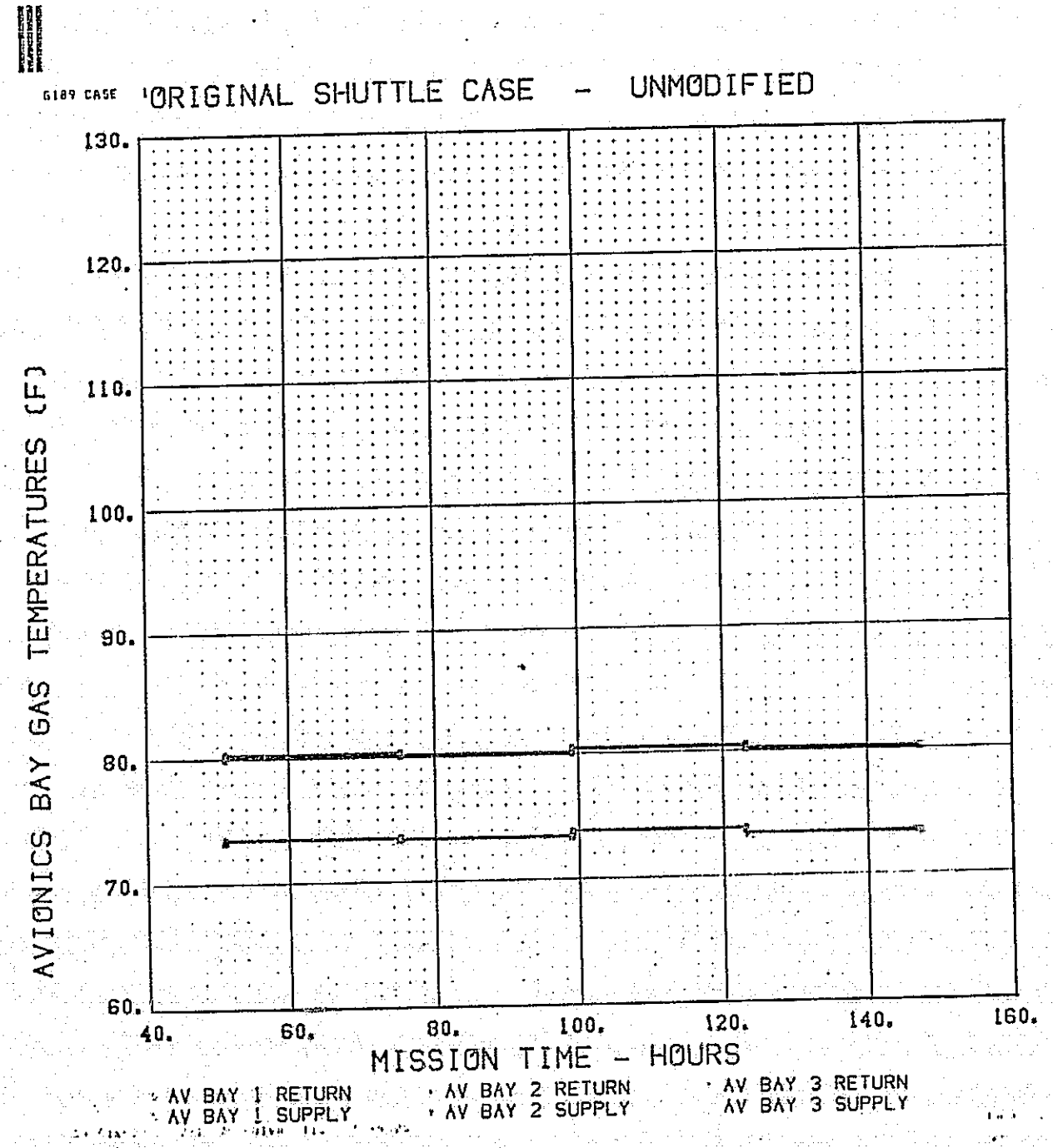
D2-118571-2
C-12

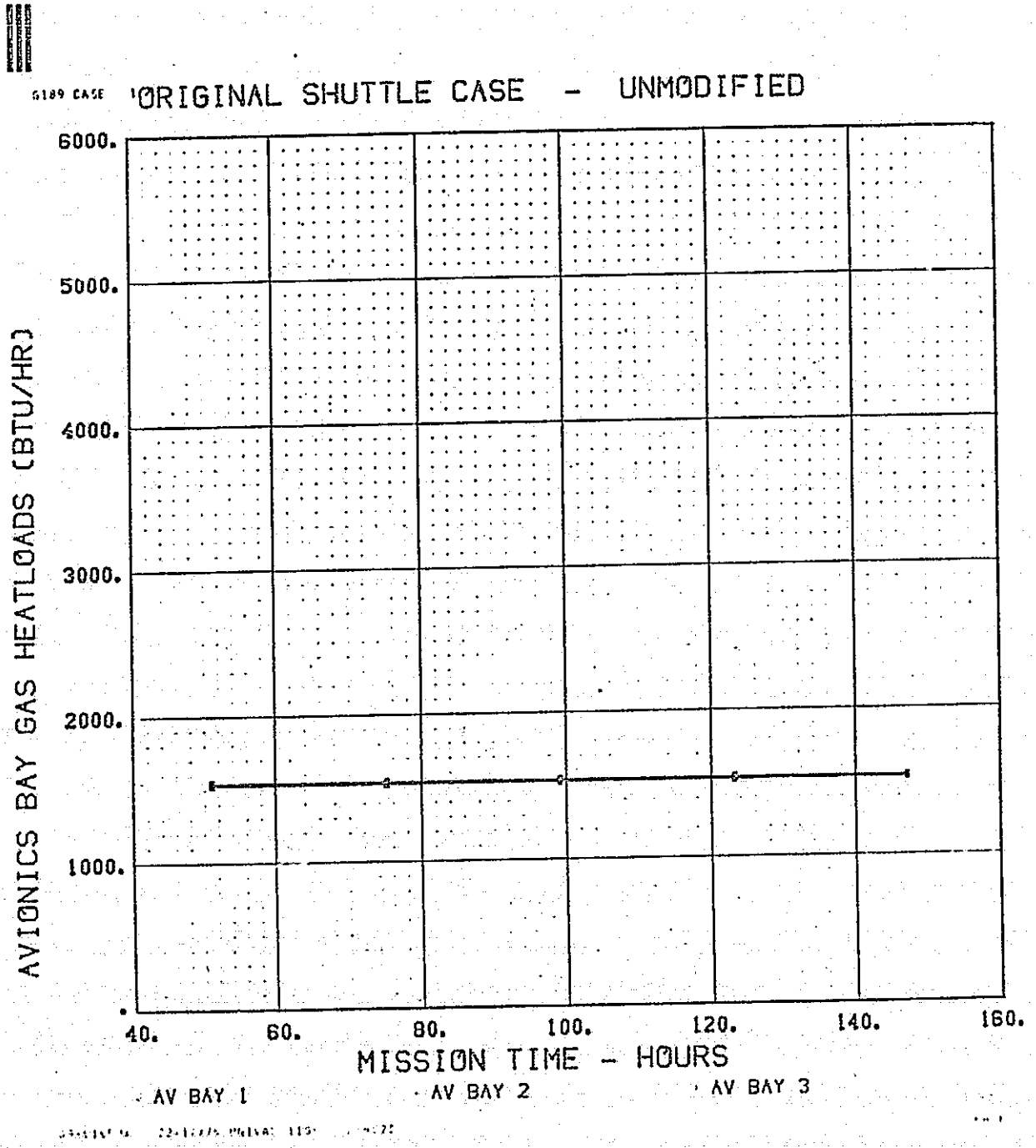
FREON COOLANT LOOP MISSION TIME = 529799.0 SEC
MISSION PHASE = 15 SORTIE OPERATIONS DAY 4 248 00H 003

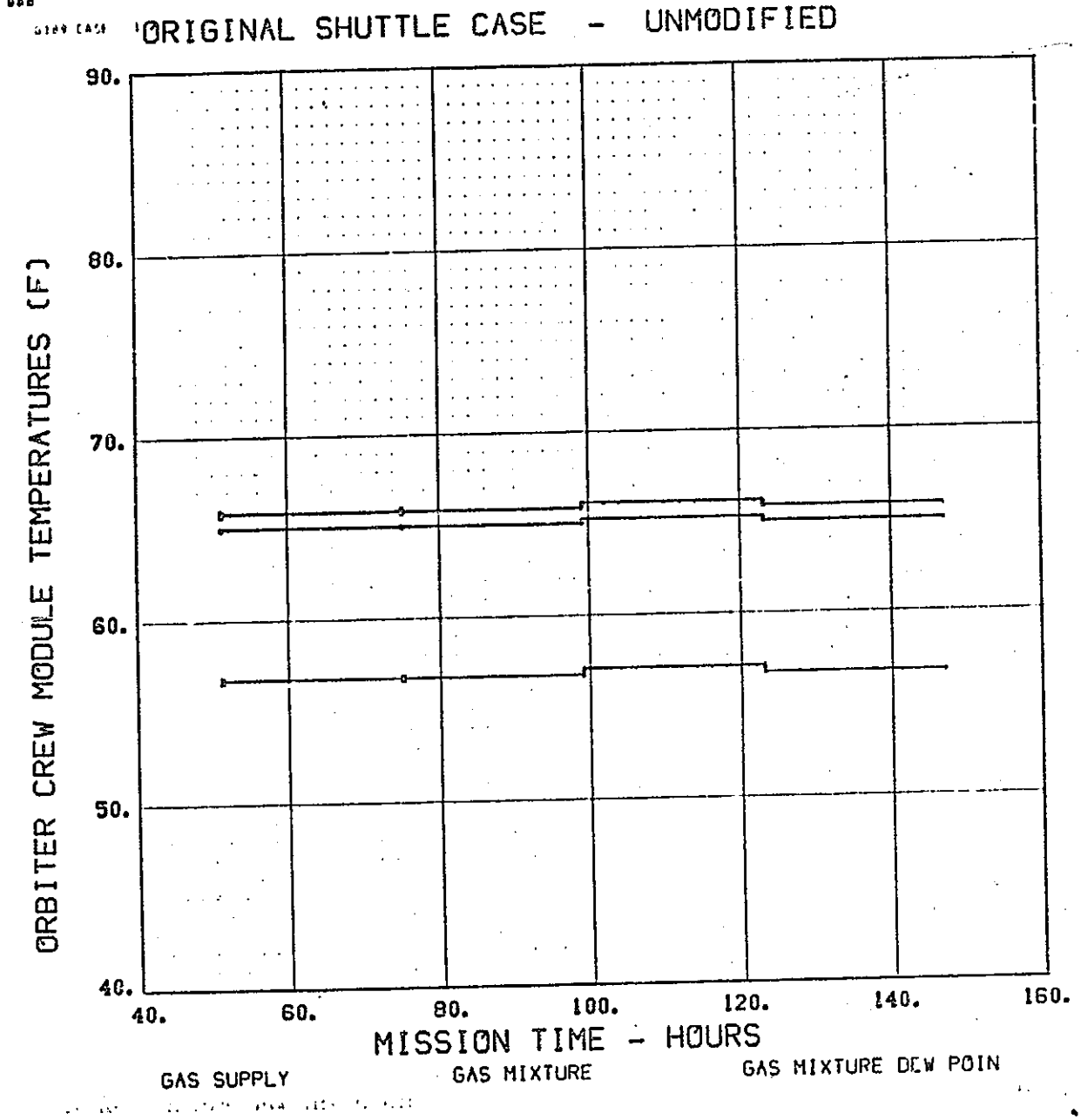


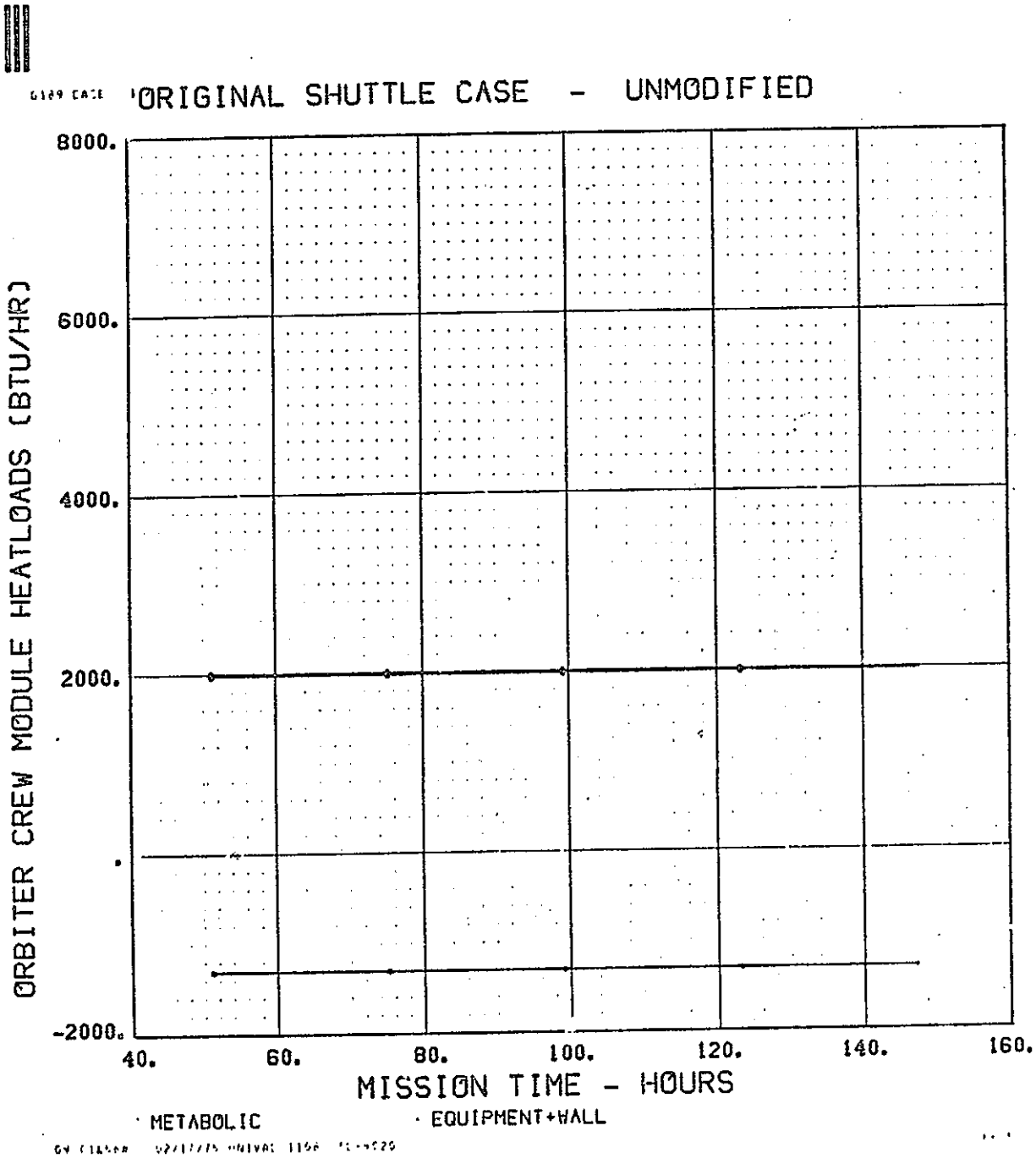
(55) ARS INTERCHANGER Q= 19286.
H=600.0 T= 75.5
T= 43.4
(59) PAYLOAD HX Q= 27000.
(60) PAYLOAD HEAT LOAD Q=-27000.
(75) OXYGEN RESTRICTOR +ENVIRONMENT Q= 0.
(74)
(76)
(77)
(97) AFT BODY COLDPLATES Q= 1633.
(100)
(62) FREON PUMP Q= 2700.
(63)
(92) FLASH EVAPORATOR Q= 0.
(64) MID BODY COLDPLATES Q= 171.
(65) FUEL CELL HX Q= 31765.
(66) FUEL CELL WASTE HEAT LOAD Q=-31765.
(72) NH3 BOILER Q= 0.
ORBKW= 9.1
P/LKW= 7.0
KH2O=12.9
FLASH EVAP. BYPASS LINE.
(73)
GSE HX BYPASS LINE
(67)
(68) HYDRAULICS HX NO. 1 Q= 0.
(70) HYDRAULICS HX NO. 2 Q= 0.
RADIATOR SYSTEM Q= -64620.
(90) GSE HX Q= 0.
(69) HYD. 1 HEAT LOAD Q= 0.
(71) HYD. 2 HEAT LOAD Q= 0.

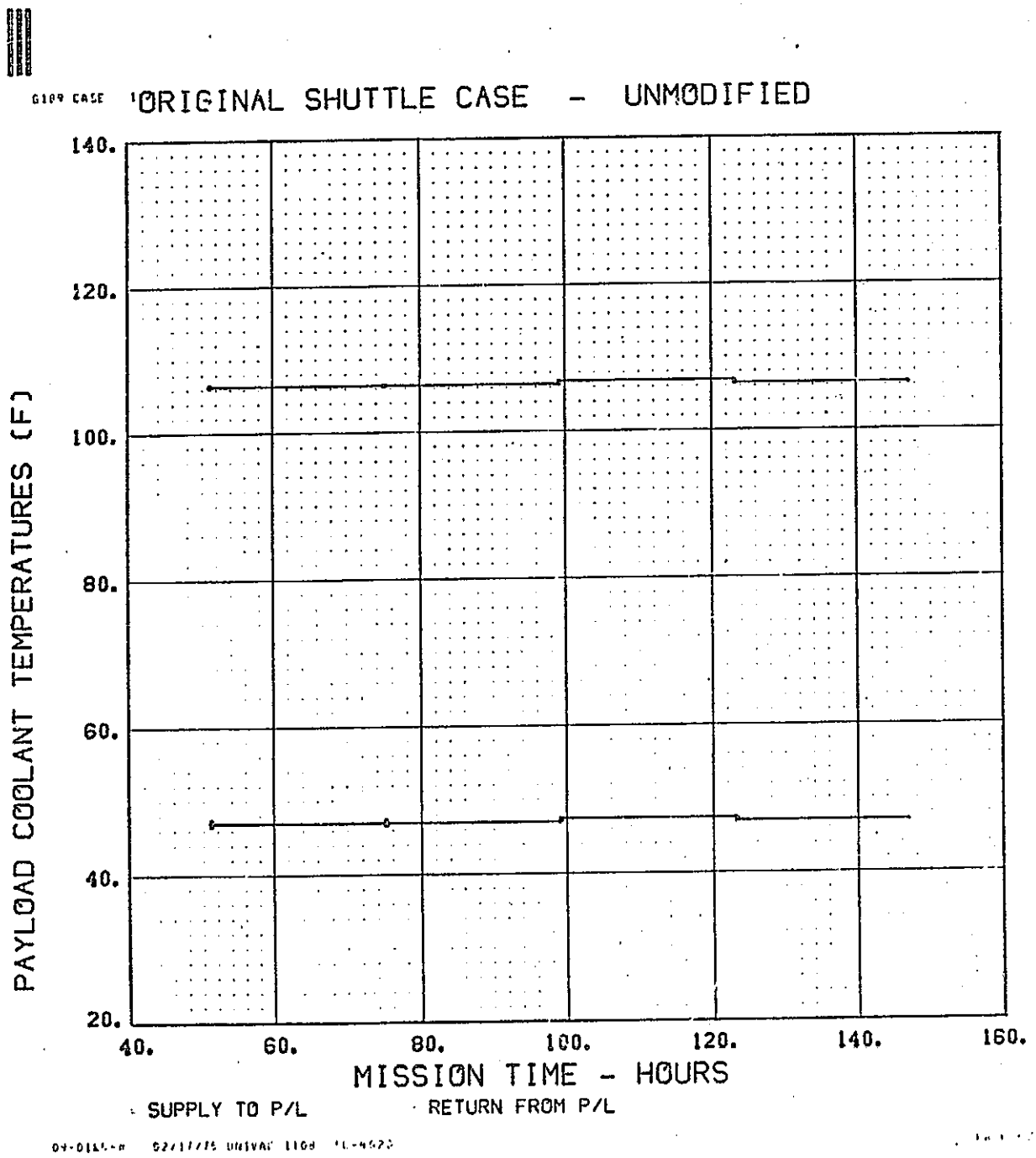

G189 CASE 1 ORIGINAL SHUTTLE CASE - UNMODIFIED
24.
20.
16.
12.
8.
4.
MISSION PHASE
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS

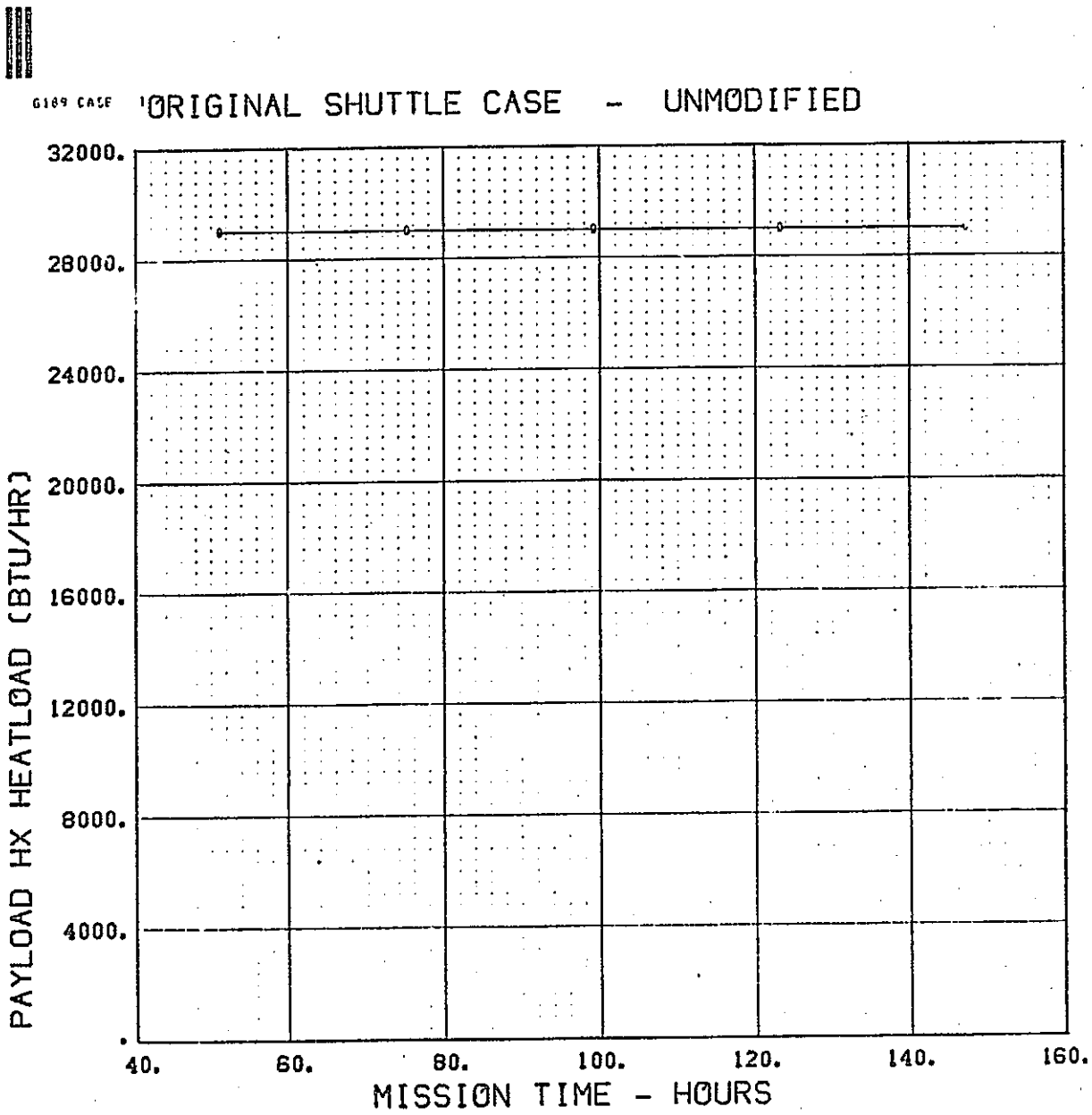

G189 CASE 1 ORIGINAL SHUTTLE CASE - UNMODIFIED
AVIONICS BAY GAS TEMPERATURES (F)
130.
120.
110.
100.
90.
80.
70.
60.
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
AV BAY 1 RETURN
AV BAY 1 SUPPLY
AV BAY 2 RETURN
AV BAY 2 SUPPLY
AV BAY 3 RETURN
AV BAY 3 SUPPLY

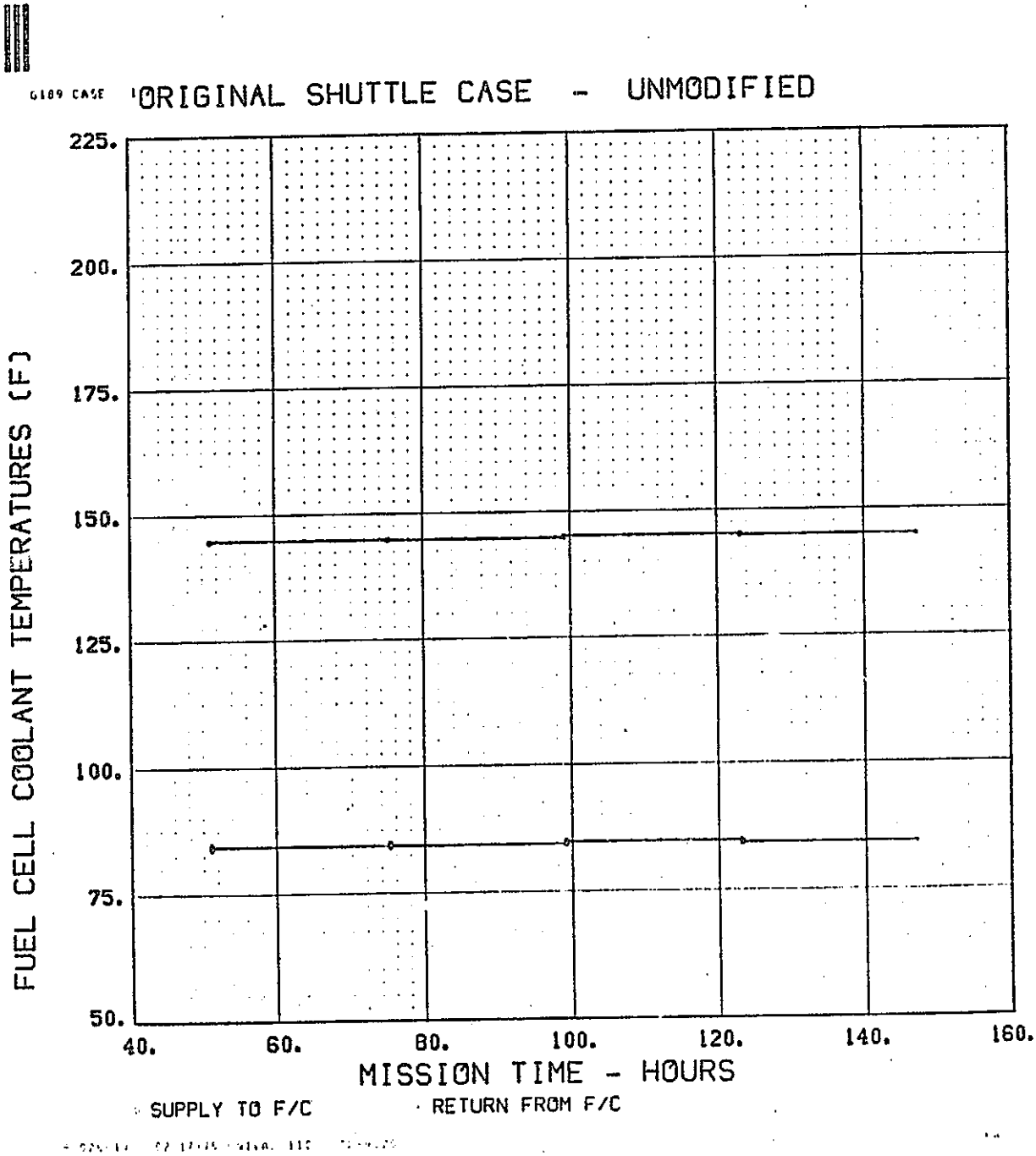

6189 CASE ORIGINAL SHUTTLE CASE - UNMODIFIED
6000.
5000.
4000.
3000.
2000.
1000.
AVIONICS BAY GAS HEATLOADS (BTU/HR)
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
AV BAY 1
AV BAY 2
AV BAY 3


ORIGINAL SHUTTLE CASE - UNMODIFIED
ORBITER CREW MODULE TEMPERATURES (F)
90.
80.
70.
60.
50.
40.
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
GAS SUPPLY
GAS MIXTURE
GAS MIXTURE DEW POIN

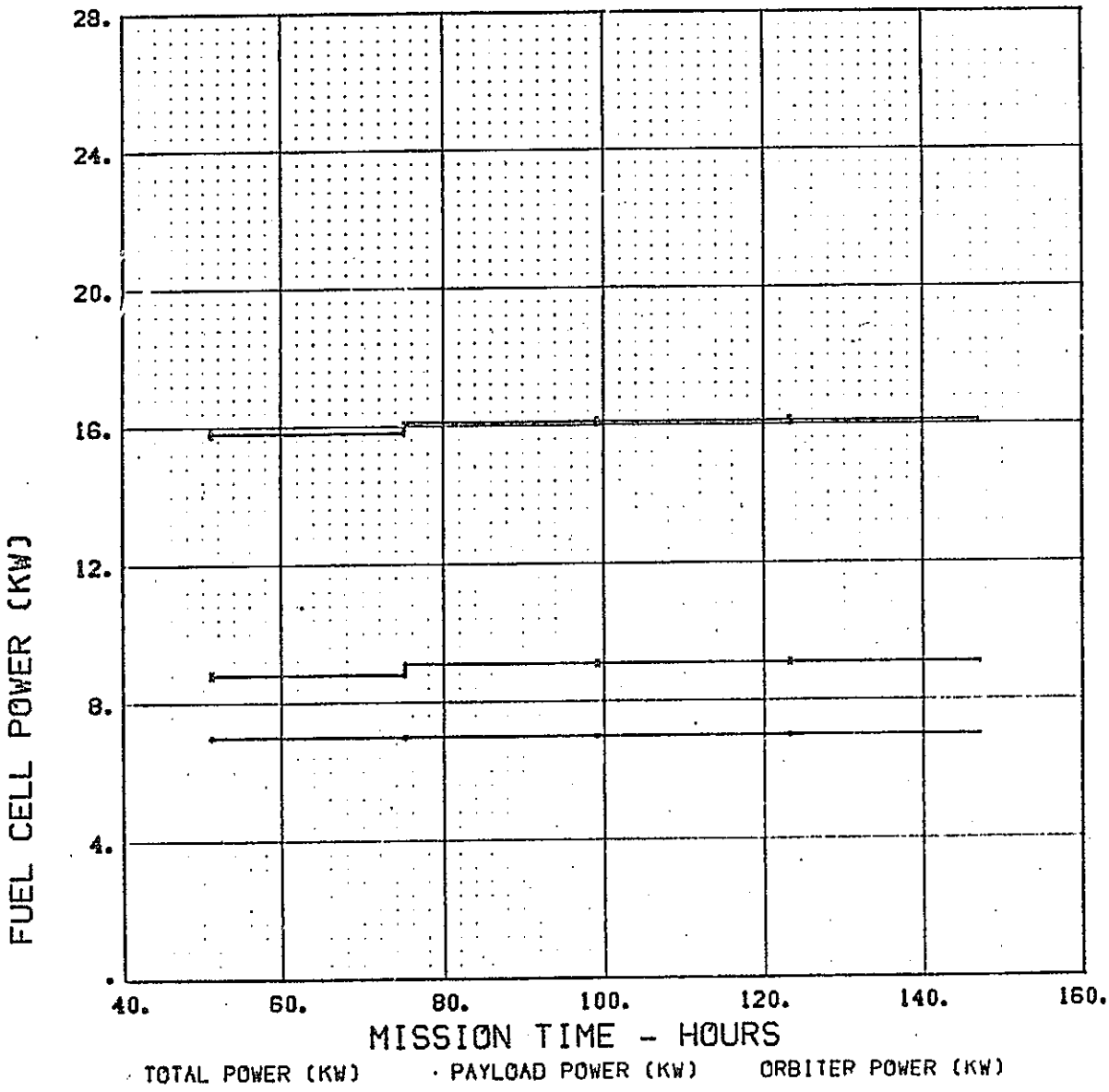

ORIGINAL SHUTTLE CASE - UNMODIFIED
ORBITER CREW MODULE HEATLOADS (BTU/HR)
8000.
6000.
4000.
2000.
-2000.
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
METABOLIC
EQUIPMENT+WALL

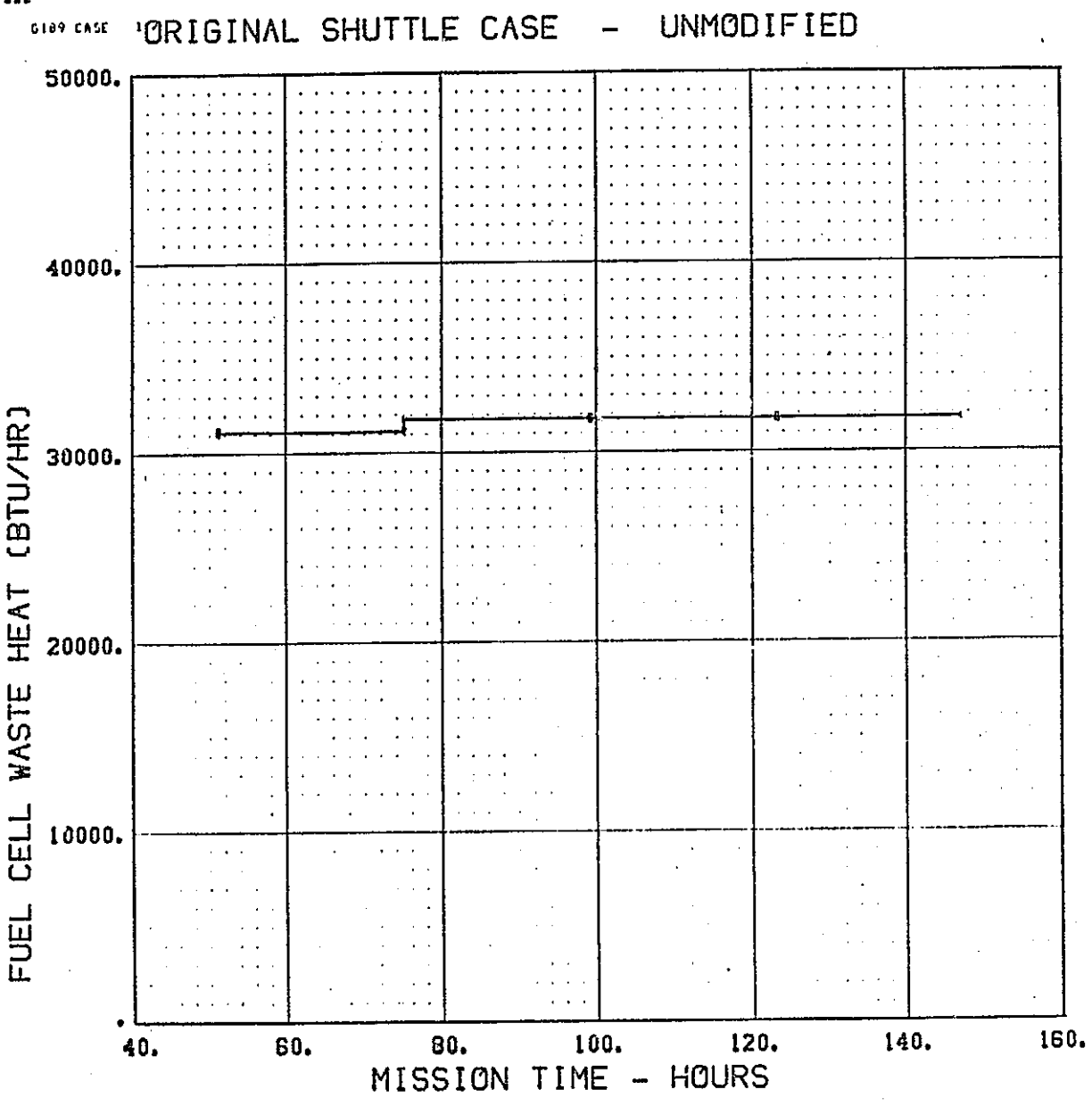

G109 CASE 1 ORIGINAL SHUTTLE CASE - UNMODIFIED
PAYLOAD COOLANT TEMPERATURES (F)
140.
120.
100.
80.
60.
40.
20.
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
SUPPLY TO P/L
RETURN FROM P/L

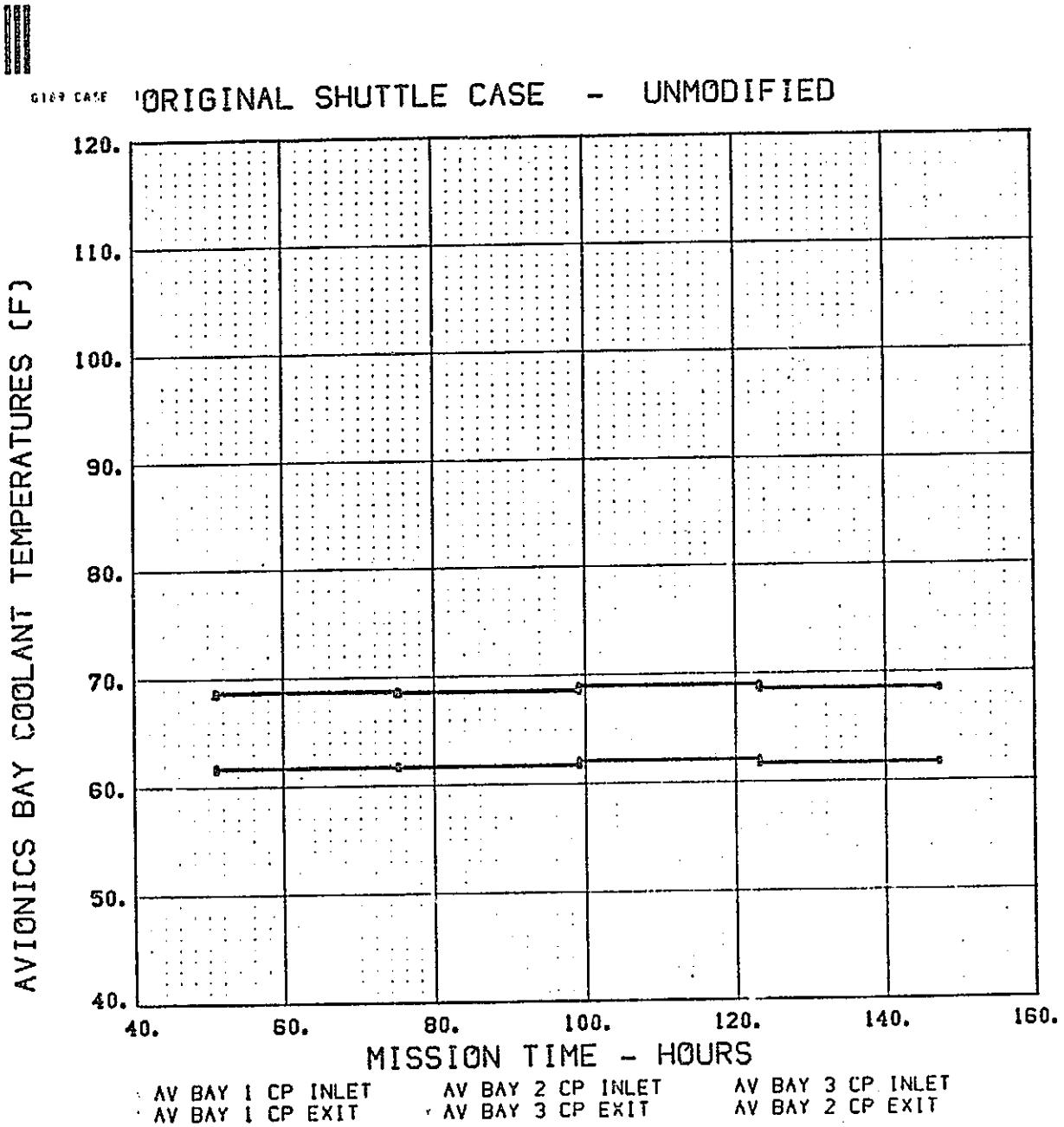

G189 CASE 1ORIGINAL SHUTTLE CASE - UNMODIFIED
32000.
28000.
24000.
20000.
16000.
12000.
8000.
4000.
.
PAYLOAD HX HEATLOAD (BTU/HR)
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS

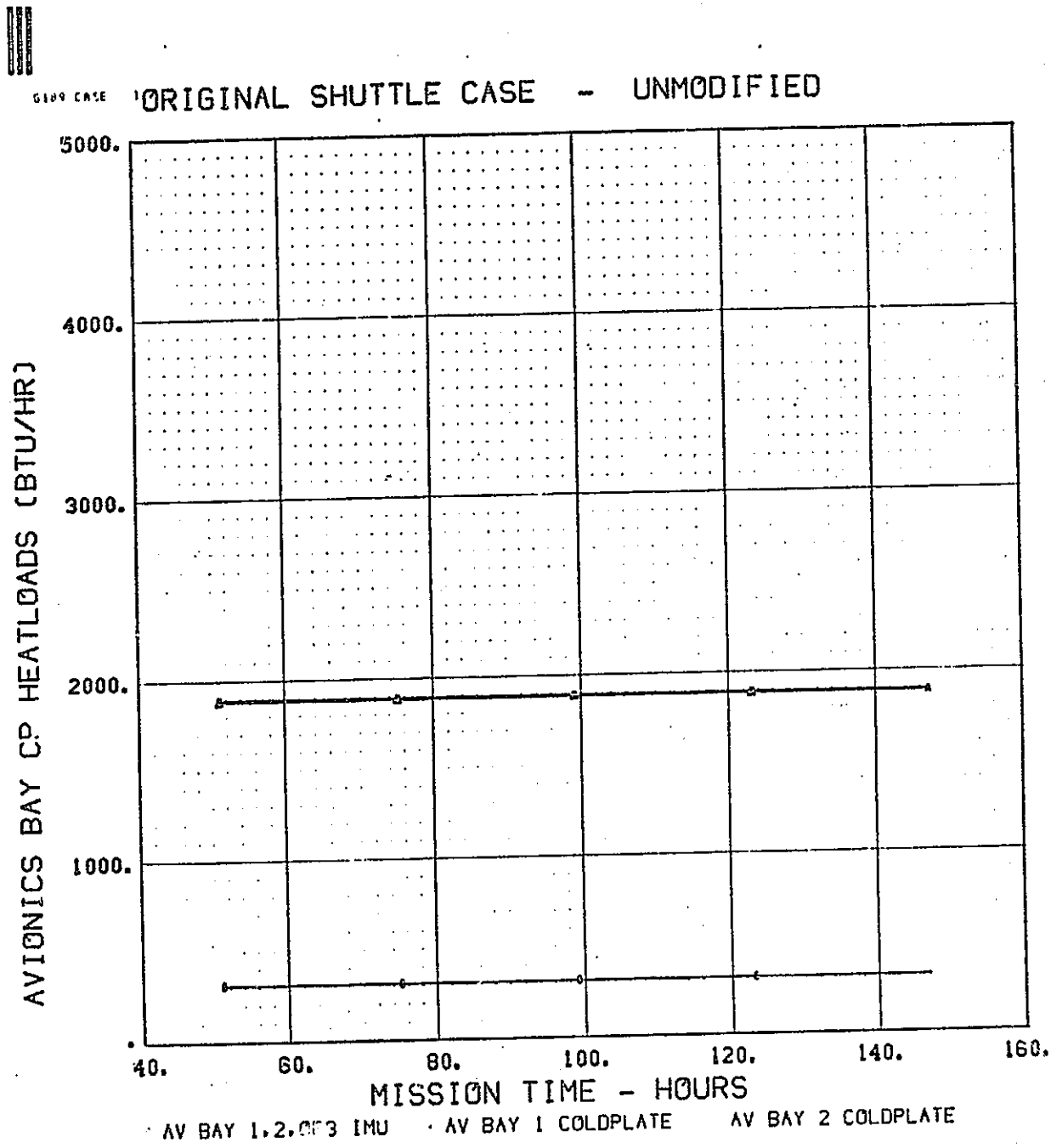

G189 CASE 1 ORIGINAL SHUTTLE CASE - UNMODIFIED
FUEL CELL COOLANT TEMPERATURES (F)
225.
200.
175.
150.
125.
100.
75.
50.
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
SUPPLY TO F/C
RETURN FROM F/C

G189 CASE 1 ORIGINAL SHUTTLE CASE - UNMODIFIED




0189 CASE 1 ORIGINAL SHUTTLE CASE - UNMODIFIED
50000.
40000.
30000.
20000.
10000.
0.
FUEL CELL WASTE HEAT (BTU/HR)
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS


ORIGINAL SHUTTLE CASE - UNMODIFIED
AVIONICS BAY COOLANT TEMPERATURES (F)
120.
110.
100.
90.
80.
70.
60.
50.
40.
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
AV BAY 1 CP INLET
AV BAY 1 CP EXIT
AV BAY 2 CP INLET
AV BAY 3 CP EXIT
AV BAY 3 CP INLET
AV BAY 2 CP EXIT


ORIGINAL SHUTTLE CASE - UNMODIFIED
5000.
4000.
3000.
2000.
1000.
AVIONICS BAY CP HEATLOADS (BTU/HR)
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
AV BAY 1,2,CP3 IMU
AV BAY 1 COLDPLATE
AV BAY 2 COLDPLATE

APPENDIX D

INPUT G-189A DATA ADDED FOR SHUTTLE ORBITER APPLIANCES

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BASIC                1       132       76           1     YEA          NAY
CASE              G-189A SHUTTLE SIMULATION  -  WITH APPLIANCES ADDED

ID**     2    4   SECONDARY SIDE DIRECTED TO DRYJOHN

KBAS     2        1 22             1 2                   -126 2                 120
NSTR     1     0                   11     SOLVE FOR TYP CREWMAN, SS MODEL
NSTR     2     101000010            1     CARRY ENTRAINED H2O
NSTR    83     0                    1

KBAS 120     0 10            -2 2                     2                         121
NSTR 120     000                   1     DRYJOHN AIR SPLITTER TO COMMODE/URINAL
VARY 120     65                      AIR SPLITTER RATIO TO DRYJOHN (SET IN GPOLY1)

ID** 121     1   DRYJOHN COMMODE/URINAL SIMULATION
KBAS 121     0 68   3        120 2                  120 2                       122
NSTR 121     00                    1
VARY 121     51 70.                COMMODE CONTENTS TEMP (F)
VARY 121     54 70.                AMBIENT GAS TEMP (F)
VARY 121     55 2.                 UA, OUTER SURFACE-TO-GAS
VARY 121     57 70.                AMBIENT WALL TEMP (F)
VARY 121     58 .8                 RADIATION CONDUCTOR, OUTER SURFACE-TO-WALL
VARY 121     60 70.                AMBIENT STRUCTURAL CONNECTION TEMP (F)
VARY 121     61 1.0                CONDUCTOR, CONTENTS-TO-AMBIENT STRUCTURE
VARY 121     63 70.                COLLECTOR OUTER SURFACE TEMP (F)
VARY 121     64 2.5                CONDUCTOR, COLLECTOR CONTENTS TO OUTER SURFACE
VARY 121     66                    DRYJOHN USAGE PHASE (SET IN GPOLY1)
VARY 121     67 20.                SLINGER MOTOR POWER (WATTS)
VARY 121     69 108.               URINE FLOWRATE DURING MICTURITION (LB/HR)
VARY 121     74 1.0                COMMODE CONTENTS SURFACE AREA (SQ FT)
VARY 121     75 2.5                EVAPORATION CORRELATION MULTIPLIER
VARY 121     77 1.5                CONDUCTOR COMMODE AIR FLOW-TO-COLLECTOR
VARY 121     78 0.15               CONDUCTOR, URINAL FLOW-TO-COLLECTOR

KBAS 122     0 10            121 2                    2                         123
NSTR 122     000                         DRYJOHN AIR SPLITTER TO VACUUM
VARY 122     65                    AIR SPLITTER RATIO TO VACUUM (SET IN GPOLY1)

KBAS 123     0   6           122 2                  121 2                       124
NSTR 123     00                    1     DRYJOHN COMMODE/URINAL AIR MIXER
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KBAS 124   0  6          123 2                        -130 2              125
NSTR 124   00                   AIR WATER MIXTURE INLET FROM A/L

KBAS 125   0 49              0   1                    -124 2              126
NSTR 125   00                    1  WATER SEPARATOR

KBAS 126   0 49          -125 2                                           127
NSTR 126   00                    1  DRYJOHN OUTLET AIR FILTER

KBAS 127   0  7          125 0   1                    130 0   1           128
NSTR 127   00                       WATER INLET FROM ARS

KBAS 128   0 29  4       -122 2                           2               129
NSTR 128   00                       FLOMETER FOR AIR TO VACUUM

KBAS 129   0 30          127 0   1                                        131
NSTR 129   010010                1  WASTE WATER STORAGE TANK
VARY 129  68 165.                WASTE WATER TANK CAPACITY (LBS)
VARY 129  69 50.                 WASTE WATER TANK INITIAL WATER MASS (LBS)
VARY 129  70 75.                 WASTE WATER TANK FLUID TEMP (DEG F)
VARY 129  72 26.                 WASTE WATER TANK PRESSURE (PSIA)

ID** 130   1  DUMMY INPUTS FROM A/L AND ARS
KBAS 130   0 49                  2                        0   1

ID** 131   1 FOOD TRAYS (4)
KBAS 131   0 66  1                                                         83
NSTR 131   000                   1
VARY 131  54 70.                AMBIENT GAS TEMP (F)
VARY 131  55 .1453              CONDUCTOR, AIR-TO-TRAY
VARY 131  57 70.                AMBIENT WALL TEMP (F)
VARY 131  58 .0614              RADIATION CONDUCTOR, TRAY-TO-WALL
VARY 131  60 70.                ATTACHED STRUCTURE TEMP (F)
VARY 131  61 .2125              CONDUCTOR, TRAY-TO-STRUCTURE
VARY 131  66                    NUMBER OF TRAY CAVITIES HEATED (SET IN GPOLY1)
VARY 131  69 0.                 HEATER POWER (WATTS) -  (CHANGE IN GPOLY1)
VARY 131  71 70.                INITIAL TRAY FOOD TEMP (F)
```

PLOT0					SHUTTLE SIMULATION *** WITH APPLIANCES
PLOT21	21	67	0.0	24.	MISSION PHASE
PLOT26			60.	130.	AVIONICS BAY GAS TEMPERATURES (F)
PLOT2	24	2			AV BAY 1 RETURN
PLOT2	30	2			AV BAY 2 RETURN
PLOT2	36	2			AV BAY 3 RETURN
PLOT2	29	2			AV BAY 1 SUPPLY
PLOT2	35	2			AV BAY 2 SUPPLY
PLOT2	41	2			AV BAY 3 SUPPLY
PLOT23			0.	6000.	AVIONICS BAY GAS HEATLOADS (BTU/HR)
PLOT2	24	66			AV BAY 1
PLOT2	30	66			AV BAY 2
PLOT2	36	66			AV BAY 3
PLOT23			40.	90.	ORBITER CREW MODULE TEMPERATURES (F)
PLOT2	23	2			GAS SUPPLY
PLOT2	2	2			GAS MIXTURE
PLOT2	2	98			GAS MIXTURE DEW POINT
PLOT22			-1500.	8000.	ORBITER CREW MODULE HEATLOADS (BTU/HR)
PLOT2	1	65			METABOLIC
PLOT2	2	66			EQUIPMENT+WALL
PLOT22			35.	125.	PAYLOAD COOLANT TEMPERATURES (F)
PLOT2	59	2			SUPPLY TO P/L
PLOT2	60	2			RETURN FROM P/L
PLOT21	60	65	0.	30000.	PAYLOAD HX HEATLOAD (BTU/HR)
PLOT22			50.	220.	FUEL CELL COOLANT TEMPERATURES (F)
PLOT2	65	2			SUPPLY TO F/C
PLOT2	66	2			RETURN FROM F/C
PLOT23			0.	25.	FUEL CELL POWER (KW)
PLOT2	66	68			TOTAL POWER (KW)
PLOT2	66	71			PAYLOAD POWER (KW)
PLOT2	66	70			ORBITER POWER (KW)
PLOT21	66	65	0.	50000.	FUEL CELL WASTE HEAT (BTU/HR)
PLOT26			40.	120.	AVIONICS BAY COOLANT TEMPERATURES (F)
PLOT2	42	21			AV BAY 1 CP INLET
PLOT2	42	2			AV BAY 2 CP INLET
PLOT2	48	2			AV BAY 3 CP INLET
PLOT2	50	2			AV BAY 1 CP EXIT
PLOT2	52	2			AV BAY 3 CP EXIT
PLOT2	51	2			AV BAY 2 CP EXIT

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PLOT24                          0.      5000.AVIONICS BAY CP HEATLOADS (BTU/HR)
PLOT2     45   65                         AV BAY 1,2,OR3 IMU
PLOT2     50   65                         AV BAY 1 COLDPLATE
PLOT2     51   65                         AV BAY 2 COLDPLATE
PLOT2     52   65                         AV BAY 3 COLDPLATE
PLOT21   131   84                         NUMBER OF FOOD TRAYS BEING HEATED
PLOT25                                    FOOD TEMPERATURES IN TRAYS ** DEG F
PLOT2    131   71                         NODE 1
PLOT2    131   72                         NODE 2
PLOT2    131   73                         NODE 3
PLOT2    131   74                         NODE 4
PLOT2    131   75                         NODE 5
PLOT22                                    FOOD HEATING TRAYS HEAT FLOW *** BTU/HR
PLOT2    131   65                         HEATERS Q-IN
PLOT2    131   53                         LOSS TO AMBIENT
PLOT21   121   66                         DRYJOHN USAGE PHASE
PLOT24                                    DRYJOHN FLUID FLOWRATES  ***  LB/HR
PLOT2    120    1                         COLLECTOR IN
PLOT2    121    1                         COLLECTOR OUT
PLOT2    120   20                         URINAL IN
PLOT2    121   20                         URINAL OUT
PLOT24                                    DRYJOHN FLUID TEMPERATURES  ***  DEG F
PLOT2    120    2                         INLET
PLOT2    121    2                         COLLECTOR OUT
PLOT2    121   21                         URINAL OUT
PLOT2    121   51                         COLLECTOR CONTENTS
PLOT22                                    DRYJOHN DRYING PROCESS PARAMETERS
PLOT2    121   76                         EVAP RATE (LB/HR)
PLOT2    121   80                         COMMODE REL. HUMDTY
PLOT23                                    DRYJOHN WATER SEPARATOR FLOW ** LB/HR
PLOT2    124    1                         INLET
PLOT2    125    1                         WATER OUT
PLOT2    125   20                         AIR OUT
ENDC
```

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00101     1*          SUBROUTINE GPOLY1                                                    GPOLY  1
00103     2*          COMMON  /COMP/ OS(15),N,NAI,NRI,NC,NCAB,NCFL,NEXT,NEXV,NK,           GPOLY  2
00103     3*         1  NKEX,NKS,NRT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),         GPOLY  3
00103     4*         2  NSTR(18),NSUBR,NV,NVT,Y(12)                                      GPOLY  4
00104     5*          COMMON  /RARRAY/  IMAXR,R(1)                                        GPOLY  5
00105     6*          COMMON  /ECLSTI/  XCHOUT,KPRNT,KPTINV(4),KWIT,KWIT1,KWIT2,          GPOLY  6
00105     7*         1  KWIT3,KWIT4,NUFF,KSTEDY                                          GPOLY  7
00106     8*          COMMON  /KANDV/ K                                                   GPOLY  8
00107     9*          COMMON  /PISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,      GPOLY  9
00107    10*         1  LPSUM(5),MAXCI,MAXLP,MAXSLP,MAXSSI,NCOMPS,NEWDT,NLAST,NPASPO,     GPOLY 10
00107    11*         2  MINSSI,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX      GPOLY 11
00110    12*          COMMON  /CASE/ NCASE,NRSCS                                          GPOLY 12
00111    13*          COMMON  /CASE3/  NPLOTS,KRUN,PRNTO,TOUT,KPRUN,NXYZ,KPUNCH,PNCH
00112    14*          COMMON  /F21P/  CPF,RHOF,VISCF,WTMF,XKF
00113    15*          COMMON  /PROPTY/  CPO,CP(99),CPCONL,CPCONV,CPCO2,CPOIL,CPOXY,CPTC,  GPOLY 13
00113    16*         1  GAMGAS,RHOC,RHO(99),VISCO,VISC(99),VISGAS,WTMO,WTM(99),WTMCON,    GPOLY 14
00113    17*         2  WTMOIL,WTMTC,XKO,XK(99),XKGAS,XKLIQ,VISLIQ                       GPOLY 15
00114    18*          COMMON/R718P/ VIS718,CP718,XK718,RHO718,WTM718                      GPOLY 16
00115    19*          COMMON  /SOURCE/  A(19),B(19),CPA,CPB,IA1,IB1,NA,NB,NPFS,NPFST(6),  GPOLY 17
00115    20*         1  NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,WTMA,WTMB,XKA,XKB             GPOLY 18
00116    21*          COMMON /POW/ POWER                                                  GPOLY 19
00117    22*          COMMON /VLOC/ IP,IS,IC,IQ,IV,IVT,IEX,IMEXK
00120    23*          COMMON/SHUTLE/PH,IPH,OLPH,IPHOLD,TIME1,OPHN(6),NPLTS                    *NEW
00121    24*          COMMON /APPLNC/ NPH,LPH,NTIM,QCAB                                   GPOLY 20
00122    25*          LOGICAL POWER                                                       GPOLY 21
00123    26*          DIMENSION V(1),K(1)
00124    27*          DIMENSION PHNAME(138)
00124    28*     C          NPLTS-NUMBER OF DIAGRAMATIC PRINTOUTS DESIRED
00125    29*          DATA NPLTS/2/
00125    30*     C
00125    31*     C  ****************MISSION DEPENDENT*********************
00125    32*     C
00127    33*          DATA (PHNAME(I),I=1,6)/
00127    34*         1 6HCOUNTD,6HOWN-LA,6HUNCH  ,6H      ,6H 00H 1,6H0M 00S/
00131    35*          DATA (PHNAME(I),I=7,12)/
00131    36*         1 6HASCENT,6H TO IN,6HSERTIO,6HN     ,6H 00H  ,6H9M 55S/
00133    37*          DATA (PHNAME(I),I=13,18)/
00133    38*         1 6HCOAST ,6HTO APO,6HGEE   ,6H      ,6H 00H 1,6H4M 23S/
00135    39*          DATA (PHNAME(I),I=19,24)/
00135    40*         1 6HCIRCUL,6HARIZAT,6HION   ,6H      ,6H 00H 1,6H2M 24S/
00137    41*          DATA (PHNAME(I),I=25,30)/
00137    42*         1 6HPHASIN,6HG      ,6H      ,6H      ,6H 18H 3,6H5M 59S/
00141    43*          DATA (PHNAME(I),I=31,36)/
00141    44*         1 6HHEIGHT,6H ADJUS,6HT      ,6H      ,6H  3H 5,6H4M 30S/
00143    45*          DATA (PHNAME(I),I=37,42)/
00143    46*         1 6HRENDEZ,6HVOUS   ,6H      ,6H      ,6H  1H 3,6H7M 23S/
00145    47*          DATA (PHNAME(I),I=43,48)/
00145    48*         1 6HDOCKIN,6HG      ,6H      ,6H      ,6H  1H 2,6H5M 25S/
00147    49*          DATA (PHNAME(I),I=49,54)/
00147    50*         1 6HLSO RE,6HFURBIS,6HH OPER,6HATIONS,6H 20H 0,6H0M 00S/
00151    51*          DATA (PHNAME(I),I=55,60)/
00151    52*         1 6HSEPARA,6HTION   ,6H      ,6H      ,6H  2H 4,6H0M 10S/
00153    53*          DATA (PHNAME(I),I=61,66)/
00153    54*         1 6HORBIT ,6HTRANSF,6HER     ,6H      ,6H  2H 1,6H0M 50S/
00155    55*          DATA (PHNAME(I),I=67,72)/
00155    56*         1 6HSORTIE,6H OPERA,6HTIONS ,6HDAY 1 ,6H 24H 0,6H0M 00S/
00157    57*          DATA (PHNAME(I),I=73,78)/
00157    58*         1 6HSORTIE,6H OPERA,6HTIONS ,6HDAY 2 ,6H 24H 0,6H0M 00S/
00161    59*          DATA (PHNAME(I),I=79,84)/
00161    60*         1 6HSORTIE,6H OPERA,6HTIONS ,6HDAY 3 ,6H 24H 0,6H0M 00S/
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00163     61*          DATA (PHNAME(I),I=85,90)/
00163     62*         16HSORTIE,6H OPERA,6HTIONS ,6HDAY 4 ,6H 24H 0,6HOH 00S/
00165     63*          DATA (PHNAME(I),I=91,96)/
00165     64*         16HSORTIE,6H OPERA,6HTIONS ,6HDAY 5 ,6H  2H 0,6HOH 00S/
00167     65*          DATA (PHNAME(I),I=97,102)/
00167     66*         16HPHASIN,6HG     ,6H      ,6H      ,6H 16H 1,6HOH 25S/
00171     67*          DATA (PHNAME(I),I=103,108)/
00171     68*         16HDEORBI,6HT     ,6H      ,6H      ,6H     4,6H3H 28S/
00173     69*          DATA (PHNAME(I),I=109,114)/
00173     70*         16HENTRY ,6H400K T,6HO 47K ,6HFT,   ,6H     3,6HOH 12S/
00175     71*          DATA (PHNAME(I),I=115,120)/
00175     72*         16HDESCEN,6HT 47K ,6HTO 16K,6H FT,  ,6H      ,6H3H 16S/
00177     73*          DATA (PHNAME(I),I=121,126)/
00177     74*         16HFINAL ,6HAPPROA,6HCH 16K,6H FT TO,6H TD    ,6H2H 39S/
00201     75*          DATA (PHNAME(I),I=127,132)/
00201     76*         16HROLLOU,6HT     ,6H      ,6H      ,6H      ,6H2H 00S/
00203     77*          DATA (PHNAME(I),I=133,138)/
00203     78*         16HPOSTLA,6HNDING ,6HTO GSE,6H CONN ,6H     1,6H3H 00S/                                  GPOLY 22
00205     79*          EQUIVALENCE (V,K)                                                                       GPOLY 23
00206     80*          LOGICAL  STEADY
00207     81*
00207     82*
00207     83*     C         CALCULATE INTEGRATED AVG PROPERTIES FOR FREON 21
00207     84*          IF(INPASS.EQ.0)  GO TO 10
00211     85*          IF(NPFST(1).NE.2 .OR. NPFT(1).NE.2) GO TO 5
00213     86*          CALL F21(A(2),R(2))
00214     87*          CPA=CPF
00215     88*          RHOA=RHOF
00216     89*          VISCA=VISCF
00217     90*          WTMA=WTMF
00220     91*          XKA=XKF
00221     92*        5 CONTINUE
00222     93*          IF(NPFST(1).NE.1.OR.NPFT(1).NE.1) GO TO 6
00224     94*          CALL R718(A(2),R(2))
00225     95*          CPA=CP718
00226     96*          RHOA=RHO718
00227     97*          VISCA=VIS718
00230     98*          WTMA=WTM718
00231     99*          XKA=XK718
00232    100*        6 CONTINUE
00233    101*          IF(NSFST(1).NE.2.OR. NSFT(1).NE.2) GO TO 10
00235    102*          CALL F21(B(2),R(2))
00236    103*          CPB=CPF
00237    104*          RHOB=RHOF
00240    105*          VISCB=VISCF
00241    106*          WTMB=WTMF
00242    107*          XKB=XKF
00243    108*       10 CONTINUE
00244    109*          IF(NSFST(1).NE.1.OR.NSFT(1).NE.1) GO TO 11
00246    110*          CALL R718(B(2),R(2))
00247    111*          CPB=CP718
00250    112*          RHOB=RHO718
00251    113*          VISCB=VIS718
00252    114*          WTMB=WTM718
00253    115*          XKB=XK718
00254    116*       11 CONTINUE
00255    117*
00255    118*     C         DETERMINE MISSION PHASE
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00255   119*          PH=VALUE(1000,TIME,0.0)*0.00001
00256   120*          IPH=IFIX(PH)
*DIAGNOSTIC* THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00257   121*          IF(PH.EQ.OLPH)  GO TO 999
00257   122*    C          PRINT A,B, R ARRAY AFTER COMP SOLUTION FOR FIRST PASS IN NEW PHASE
00261   123*          IF(KSYPAS.EQ.0)  GO TO 99999
00261   124*    C          PRINT RESULTS AT END OF LAST MISSION PHASE
00263   125*          TIME1=TIME-DTIME
00264   126*          WRITE(6,99998)  KSYPAS,TIME1,OLPH
00271   127*    99998 FORMAT(/////1H0,13HSYSTEM PASS =,I5,9X,6HTIME =,F9.1,4H SEC,9X,
00271   128*         1   15HMISSION PHASE =,F5.1)
00272   129*          IF(KCHOUT.EQ.0)  GO TO 9021
00274   130*          WRITE(6,9010)
00276   131*    9010  FORMAT(//,5H COMP,3X,4HR(1),8X,4HR(2),8X,5HR(20),7X,5HR(21),
00276   132*         27X,5HR(65),7X,5HR(66),7X,5HR(67),2X)
00277   133*          ICNT=NCOMPS
00300   134*          DO 9020 II=1,ICNT
00303   135*          IK=K(2*II-1)
00304   136*          IF(K(IK+1).LE.0) GO TO 9020
00306   137*          R1=VV(II,1)
00307   138*          R2=V(IP+2)
00310   139*          R20=V(IS+1)
00311   140*          R21=V(IS+2)
00312   141*          R65=0.0
00313   142*          R66=0.0
00314   143*          R67=0.0
00315   144*          IVZ=INEXK-IV
00316   145*          IF(IVZ.GT.0) R65=V(IV+1)
00320   146*          IF(IVZ.GT.1) R66=V(IV+2)
00322   147*          IF(IVZ.GT.2) R67=V(IV+3)
00324   148*          WRITE(6,9030) II,R1,R2,R20,R21,R65,R66,R67
00336   149*    9030  FORMAT(1H ,I3,1X,10(G12.5))
00337   150*          IF(.NOT.(II.EQ.2.OR.II.EQ.82)) GO TO 9050
00341   151*          WRITE(6,9040) V(IV+34)
00344   152*    9040  FORMAT(1H+,88X,6HR(98)=,G12.5)
00345   153*          GO TO 9020
00346   154*    9050  IF(II.NE.66) GO TO 9020
00350   155*          WRITE(6,9060) V(IV+4),V(IV+5)
00354   156*    9060  FORMAT(1H+,88X,6HR(68)=,G12.5,3X,6HR(69)=,G12.5)
00355   157*    9020  CONTINUE
00357   158*    9021  CONTINUE
00360   159*          CALL PRTIME
00361   160*          CALL ARSGAS
00362   161*          CALL ARSH2O
00363   162*          CALL FCL
00364   163*          IF(NPLOTS.GT.0)  CALL TAPEIT
00366   164*          CALL SV(PH,Z1,67)
00367   165*    99999 CONTINUE
00370   166*          OLPH=PH
00371   167*          IPHOLD=IFIX(OLPH)
00372   168*          IPN=6*IPHOLD-6
00373   169*          DO 9080 J=1,6
00376   170*          OPHN(J)=PHNAME(J+IPN)
00377   171*    9080  CONTINUE
00377   172*    C          DETERMINE NUMBER OF MEN IN ORBITER CABIN
00401   173*          NMEN=IFIX(VALUE(1001,PH,0.01+.1)
00402   174*          CALL SK(NMEN,1,16)
00402   175*    C          FIND MAIN CABIN HEAT LOAD  (DOES NOT INCLUDE METABOLIC)
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00403    176*          QCAB=VALUE(1002,PH,0,0)
00404    177*          CALL SV(QCAB,2,66)
00404    178*    C     FIND AVIONICS BAY AIR HEAT LOADS (DOES NOT INCLUDE FAN)
00405    179*          QAV1=VALUE(1024,PH,0.)/3.+601.
00406    180*          QAV2=QAV1
00407    181*          QAV3=QAV1
00410    182*          CALL SV(QAV1,24,66)
00411    183*          CALL SV(QAV2,30,66)
00412    184*          CALL SV(QAV3,36,66)
00412    185*    C     DETERMINE INTERCHANGER WATER FLOW
00413    186*          WIC=VALUE(1033,PH,0.0)
00414    187*          CALL SV(WIC,33,1)
00414    188*    C     FIND IMU LOAD FOR EACH WATER LOOP CIRCUIT
00415    189*          QIMU=VALUE(1040,PH,0.0)
00416    190*          QIMU1=QIMU/3.0
00417    191*          QIMU2=QIMU1
00420    192*          QIMU3=QIMU1
00421    193*          CALL SV(QIMU1,45,65)
00422    194*          CALL SV(QIMU2,44,65)
00423    195*          CALL SV(QIMU3,40,65)
00423    196*    C     DETERMINE WATER LOOP PUMP FLOWS AND POWER
00424    197*          WWPMP=VALUE(1043,PH,0.0)
00424    198*    C     INITIALIZE WATER LOOP FLOWS
00425    199*          W3320=WWPMP-WIC
00426    200*          CALL SV(W3320,33,20)
00427    201*          CALL SV(WIC,61,1)
00430    202*          WPWATT=695./3.413
00431    203*          CALL SV(WPWATT,43,85)
00431    204*    C     FIND AVIONICS BAY COLDPLATE HEAT LOADS (CONVERT TO WATTS)
00432    205*          QAVCP1=VALUE(1050,PH,0.0)/10.239
00433    206*          QAVCP2=QAVCP1
00434    207*          QAVCP3=QAVCP1
00435    208*          CALL SV(QAVC.1,50,66)
00436    209*          CALL SV(QAVCP2,51,66)
00437    210*          CALL SV(QAVCP3,52,66)
00437    211*    C     FIND LOW TEMP PAYLOAD HEAT LOAD
00440    212*          QLTPL=VALUE(1060,PH,0.0)
00441    213*          CALL SV(QLTPL,60,65)
00441    214*    C     DETERMINE FREON PUMP FLOWS AND POWER
00442    215*          WFPHP=VALUE(1062,PH,0.0)
00443    216*          FPWATT=WFPMP/5000.*(2700./3.413)
00444    217*          CALL SV(FPWATT,62,85)
00444    218*    C     DETERMINE MID BODY COLDPLATE FLOW
00445    219*          WMIDCP=0.0509*WFPHP
00446    220*          CALL SV(WMIDCP,63,1)
00446    221*    C     DETERMINE MID-BODY COLDPLATE HEAT LOAD. (CONVERT TO WATTS)
00447    222*          QMIDCP=VALUE(1069,PH,0.0)/3.413
00450    223*          CALL SV(QMIDCP,64,66)
00451    224*
00451    225*    C     DETERMINE ORBITER REQUIRED POWER (KW)
00451    226*          OBFCKW=VALUE(2066,PH,0.0)
00451    227*    C     DETERMINE PAYLOAD REQUIRED POWER (KW)
00452    228*          PLFCKW=VALUE(3066,PH,0.0)
00452    229*    C     DURING ON-ORBIT PHASES ASSUME ORBITER POWER IS SHARED BY
00452    230*    C     2 FUEL CELLS AND ALL PAYLOAD POWER IS DRAWN FORM A DEDICATED
00452    231*    C     PAYLOAD FUEL CELL
00453    232*          OBFCK=OBFCKW/2.0
00454    233*          PLFCK=PLFCKW
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00455    234*          IF(IPH.GT.11.AND. IPH.LE.16) GO TO 6615
00455    235*    C          AVERAGE POWER BETWEEN ALL FUEL CELLS DURING NON ON-ORBIT PHASES
00457    236*          OBFCK=(OBFCKW+PLFCKW)/3.0
00460    237*          PLFCK=OBFCK
00461    238*     6615 CONTINUE
00462    239*          OBH20=8.94*VALUE(4066,OBFCK,0.0)*OBFCK
00463    240*          OBFCQ=VALUE(5066,OBFCK,0.0)
00464    241*          OBFCW=VALUE(6066,OBFCK,0.0)
00465    242*          OBFCT=VALUE(7066,OBFCK,0.0)
00466    243*          PLH20=8.94*VALUE(4066,PLFCK,0.0)*PLFCK
00467    244*          PLFCQ=VALUE(5066,PLFCK,0.0)
00470    245*          PLFCW=VALUE(6066,PLFCK,0.0)
00471    246*          PLFCT=VALUE(7066,PLFCK,0.0)
00471    247*    C          ASSUME 140 DEG F RETURN TEMP FROM F/C HX; CP(FC-40)=0.27,
00471    248*    C          SOLVE FOR FLOW THRU HX
00472    249*          OBFCW1=OBFCQ/(0.27*(OBFCT-140.0))
00473    250*          OBFCW2=AMIN1(OBFCW,OBFCW1)
00474    251*          PLFCW1=PLFCQ/(0.27*(PLFCT-140.0))
00475    252*          PLFCW2=AMIN1(PLFCW,PLFCW1)
00475    253*    C          SOLVE FOR TOTAL FC-40 FLOW THRU F/C HX AND STORE VALUE
00476    254*          W6501=2.0*OBFCW2+PLFCW2
00477    255*          CALL SV(W6501,65,1)
00477    256*    C          SOLVE FOR AVERAGE MIXED INLET TEMP OF TOTAL FC-40 FLOW TO F/C HX
00500    257*          T6602=(2.0*OBFCW2*OBFCT+PLFCW2*PLFCT)/W6501
00501    258*          CALL SV(T6602,66,2)
00502    259*          FCH20=2.0*OBH20+PLH20
00503    260*          CALL SV(FCH20,66,69)
00503    261*    C          ESTIMATE FUEL CELL KW FROM HEAT LOAD DATA AND CHECK WITH TABLE DATA
00504    262*          QLKW=.001*(QAVCP1+QAVCP2+QAVCP3+VV(8,91)+VV(26,91)+VV(32,91)
00504    263*         3          +QH1DCP+QAFTCP
00504    264*         1          +VV(38,91)+WPRATT+FPWATT + (QCAB+QPLAIR+QHXIN+QAV1
00504    265*         2          +QAV2+QAV3+Q1MU1/3.413  ) + PLFCKW
00505    266*          CALL SV(QLKW,66,67)
00506    267*          FCKW=OBFCKW+PLFCKW
00507    268*          CALL SV(FCKW,66,68)
00510    269*          CALL SV(PLFCKW,66,71)
00511    270*          CALL SV(OBFCKW,66,70)
00511    271*    C          DETERMINE FUEL CELL WASTE HEAT
00512    272*          QFCWH=2.0*OBFCQ+PLFCQ
00513    273*          CALL SV(QFCWH,66,65)
00514    274*
00514    275*    C          FIND HYDRAULIC LOOP HEAT LOSS
00514    276*          QHYD1=VALUE(1069,PH,0.0)
00515    277*          CALL SV(QHYD1,69,65)
00516    278*          QHYD2=VALUE(1071,PH,0.0)
00517    279*          CALL SV(QHYD2,71,65)
00517    280*    C          DETERMINE OXYGEN RESTRICTOR + ENVIRONMENT HEAT LOAD
00520    281*          QO2R=VALUE(1075,PH,0.0)
00521    282*          CALL SV(QO2R,75,65)
00521    283*    C          DETERMINE ARS I/C FREON FLOW FROM DIVERTER VALVE
00522    284*          WFIC=VALUE(1076,PH,0.0)
00523    285*          CALL SV(WFIC,76,1)
00523    286*    C          FIND HIGH TEMP PAYLOAD Hx HEAT LOAD
00524    287*          QHTPL=VALUE(1079,PH,0.0)
00525    288*          CALL SV(QHTP ,79,65)
00525    289*    C          DETERMINE NUMBER OF HEN IN PAYLOAD CABIN
00526    290*          NHENP=IFIX(VALUE(1081,PH,0.0)+.1)
00527    291*          CALL SK(NHENP,81,16)
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00527     292*      C          FIND HEAT LOAD FOR PAYLOAD AIR FROM MAIN CABIN
00530     293*           QPLAIR=VALUE(1082,PH,0.0)
00531     294*           CALL SV(QPLAIR,82,66)
00531     295*      C          FIND MAIN CABIN HEAT LOADS TO BE ADDED BEFORE HX INLET
00531     296*      C            (DOES NOT INCLUDE LIOH OR FAN LOADS)
00532     297*           QHXIN=VALUE(1084,PH,0.0)
00533     298*           CALL SV(QHXIN,84,65)
00533     299*      C          SET GSE HX GLYCOL FLOW
00534     300*           WGSE=0.0
00534     301*      C
00534     302*      C ***************MISSION DEPENDENT*********************
00534     303*      C
00535     304*           IF(IPH.EQ.1)  WGSE=10000.
00537     305*           CALL SV(WGSE,91,1)
00537     306*      C          DETERMINE FLASH EVAPORATOR BYPASS FREON FLOW
00540     307*           WFEBYP=0.7964*WFPHP*VALUE(1093,PH,0.0)
00541     308*           CALL SV(WFEBYP,93,20)
00541     309*      C          DETERMINE AFT BODY COLDPLATES FLOW
00542     310*           WAFTCP=0.1309*WFPHP
00543     311*           CALL SV(WAFTCP,96,20)
00543     312*      C          DETERMINE AFT-BODY COLDPLATE HEAT LOAD (CONVERT TO WATTS)
00544     313*           QAFTCP=VALUE(1097,PH,0.0)/3.413
00545     314*           CALL SV(QAFTCP,97,66)
00546     315*
00546     316*      C          DETERMINE PAYLOAD HX FLOWS FOR CMIN/CMAX=1.0
00546     317*           WLTPL=WFPHP-WFEBYP-WAFTCP-WFIC
00547     318*           CALL SV(WLTPL,59,1)
00550     319*           CALL SV(WFPHP,78,1)
00550     320*      C          SET UP FREON LOOP FLOW THRU LOW TEMP PAYLOAD HX
00551     321*           CALL SV(WLTPL,76,20)
00552     322*
00552     323*      999 CONTINUE
00553     324*
00553     325*
00553     326*      2   IF(N.NE.2)  GO TO 250
00553     327*      C CALC REQUIRED O2 MAKEUP FOR SS CABIN SIM
00555     328*           R(165)=R(160)+VV(1,68)
00555     329*      C  CALC N2 MAKEUP FOR SS MODEL
00556     330*           R(166)=R(161)
00557     331*      250 CONTINUE
00560     332*      22   IF(N.NE.22) GO TO 2250
00560     333*      C ***** REF **** R REUMONT, RI:  10/18/74
00562     334*           W3=A(1)*R(72)/CPA
00563     335*           W3=AMAX1(W3,A(1))
00564     336*           R(66)=14.137*W3**0.592
00565     337*      2250  CONTINUE
00566     338*      29   IF(N.NE.29.AND.N.NE.35.AND.N.NE.41)  GO TO 2950
00566     339*      C ***** REF **** R REUMONT, RI:  10/18/74
00570     340*           R(66)=6.4*A(1)**.588
00571     341*      2950  CONTINUE
00572     342*      55   IF(N.NE.55) GO TO 5550
00574     343*           IF(B(1).GT.3000.) GO TO 5510
00574     344*      C          DUAL FREON LOOP OPERATION
00574     345*      C ***** REF **** R REUMONT, RI:  10/18/74
00576     346*           R(66)=450.37*B(1)**.34
00577     347*           GO TO 5550
00577     348*      C          SINGLE FREON LOOP OPERATION
00600     349*      5510  R(66)=225.51*B(1)**.402
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00601     350*      5550 CONTINUE
00602     351*           60   IF(N.NE.60)  GO TO 6050
00604  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00604     352*                IF(R(65).EQ.0.0)  A(2)=VV(76,21)
00606     353*           6050 CONTINUE
00607     354*           59   IF(N.NE.59) GO TO 5950
00607     355*           C ***** REF **** R REUMONT, RI, 10/18/74
00611     356*                R(66)=5.1832*B(1)**.886
00612     357*      5950 CONTINUE
00613     358*           65   IF(N.NE.65)  GO TO 6550
00615     359*                CMIN=A(1)*CPA
00616     360*                CMAX=B(1)*CPB
00617     361*                IF(CMIN.LT.CMAX)  GO TO 6510
00621     362*                X=CMIN
00622     363*                CMIN=CMAX
00623     364*                CMAX=X
00624     365*           6510 CONTINUE
00624     366*           C         ASSUME 3 FUEL CELL OPERATION FOR UA CALC
00625     367*                R(66)=20.730*A(1)**0.540
00625     368*           C         CALC COUNTERFLOW HX EFFECTIVENESS
00626     369*                E1=EXP(-R(66)/CMIN*(1.0-CMIN/CMAX))
00627     370*                R(67)=(1.0-E1)/(1.0-CMIN/CMAX*E1)
00627     371*           C         IF B(1).GT.3000 = ASSUME DUAL FREON LOOP OPERATION (2HX IN SERIES)
00630     372*                IF(B(1).LE.3000.) GO TO 6550
00632     373*                RR=CMIN/CMAX
00633     374*                EQVR=R(67)/RR
00634     375*                X=EQVR*(1.-.25*EQVR)
00635     376*                IF(RR.LE..5) X=R(67)*(2.-R(67))
00637     377*                R(67)=X
00640     378*           6550 CONTINUE
00641     379*                IF(N.NE.66)  GO TO 6650
00643  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00643     380*                IF(R(65).EQ.0.0)  A(2)=VV(62,02)
00645     381*           6650 CONTINUE
00646     382*           69   IF(N.NE.69)  GO TO 6950
00650  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00650     383*                IF(R(65).EQ.0.0)  A(2)=VV(67,02)
00652     384*           6950 CONTINUE
00653     385*           71   IF(N.NE.71)  GO TO 7150
00655  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00655     386*                IF(R(65).EQ.0.0)  A(2)=VV(68,02)
00657     387*           7150 CONTINUE
00660     388*           79   IF(N.NE.79)  GO TO 7950
00662  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00662     389*                IF(R(65).EQ.0.0)  A(2)=VV(77,02)
00664     390*           7950 CONTINUE
00665     391*           80   IF(N.NE.80)  GO TO 8050
00665     392*           C         FIND PAYLOAD GAS FLOW FROM MAIN CABIN
00667     393*                PLCFM=VALUE(1080,PH,0.0)
00670     394*                R(20)=PLCFM*RHOA*60.0
00671     395*      8050 CONTINUE
00672     396*           82   IF(N.NE.82)  GO TO 8250
00672     397*           C CALC REQUIRED O2 MAKEUP FOR SS CABIN SIM
00674     398*                R(65)=R(60)+VV(81,68)
00675     399*           8250 CONTINUE
00676     400*           90   IF(N.NE.90) GO TO 9055
00676     401*           C ***** REF **** R REUMONT, RI, 10/18/74
00700     402*                R(66)=420.67*B(1)**.243
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00701          9055  CONTINUE
00702
00702
00702
00702          C                                                                *NEW
00702          C          THE FOLLOWING CARDS INSERTED TO ADD APPLIANCES        *NEW
00702          C                                                                *NEW
00702                DATA NPH,LPH,NTIH/ 0,0,0/                                  *NEW
00702          C          CONTROL PRINT-OUT                                     *NEW
00706                NSTR(17)=0                                                 *NEW
00707                IF (NPASS.EQ.0) GO TO 9085                                 *NEW
00711                IF (NTIH .GT. 0) GO TO 9090                                *NEW
00713          9085  NDUM=(N-1)*(N-2)*(N-83)*(N-120)*(N-121)*(N-123)            *NEW
00714                IF (NDUM .EQ. 0) GO TO 9089                                *NEW
00716                NDUM=    (N-125)*(N-126)*(N-129)*(N-131)                   *NEW
00717          9089  IF (NDUM .EQ. 0) NSTR(17)=1                                *NEW
00721          9090  CONTINUE                                                   *NEW
00721          C                                                                *NEW
00722                IF (N .EQ.  2) GO TO 200                                   *NEW
00724                IF (N.EQ.120) GO TO 12000                                  *NEW
00726                IF (N.EQ.121) GO TO 12100                                  *NEW
00730                IF (N.EQ.122) GO TO 12200                                  *NEW
00732                IF (N.EQ.131) GO TO 13100                                  *NEW
00734                RETURN                                                     *NEW
00734          C          ADD FOOD WARMING TRAYS AND DRYJOHN HEAT TO CABIN      *NEW
00735           200  R(66)=QCAB +VV(131,53)+ VV(121,53)                         *NEW
00736                IF (IPH+NTIH   .LE. 12) CALL RESET                         *NEW
00740                CALL CLOCK(DUM)                                            *NEW
00741                IF (DUM+9. .GT. 22.) TIMErX=100.                           *NEW
00743                NTIH=NTIH+1                                                *NEW
00744                IF (IPH .GT. LPH) NTIH=0                                   *NEW
00746                LPH=IPH                                                    *NEW
00747                WRITE (6,210) IPH,KSYPAS,DUM                               *NEW
00754           210  FORMAT (    2I5, F9.4   )                                  *NEW
00755                RETURN                                                     *NEW
00755          C          SET AIR SPLITTER RATIO TO DRYJOHN                     *NEW
00756         12000  R(65)=.571                                                 *NEW
00757                IF (IPH .LE. 13) R(65)=1.0                                 *NEW
00761                RETURN                                                     *NEW
00761          C          SET DRYJOHN USAGE PHASE                               *NEW
00762         12100  CONTINUE                                                   *NEW
00763                R(66)=PH-12.                                               *NEW
00764                RETURN                                                     *NEW
00764          C          DRYJOHN VACUUM OUTLET SPLITTER                        *NEW
00765         12200  R(65)=0.0                                                  *NEW
00766                IF (IPH .LE. 13) R(65)=1.0                                 *NEW
00770                RETURN                                                     *NEW
00770          C          SET NUMBER OF FOOD TRAY CAVITIES TO BE HEATED         *NEW
00771         13100  R(66)=3.* (PH-11.)                                         *NEW
00772                IF (IPH .EQ. 12) R(66)=0.                                  *NEW
00774                R(84)=R(66)/3.                                             *NEW
00775                IF (IPH.NE.13 .OR. IPH.EQ.NPH) GO TO 13150                 *NEW
00777                NPASS=0                                                    *NEW
01000                R(71)=120.                                                 *NEW
01001                R(69)=7.9                                                  *NEW
01002         13150  NPH=IPH                                                    *NEW
01002          C                                                                *NEW
01002          C                                                                *NEW
01002          C                                                                *NEW
01003                RETURN                                                 GPOLY407
01004                END                                                    GPOLY408
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00101      1*          SUBROUTINE GPOLY2                                                GPOLY  1
00103      2*          COMMON  /COMP/ DS(15),N,NAI,NBI,NC,NCAB,NCFL,NEXT,NEXV,NK,       GPOLY  2
00103      3*         1  NKEX,NKS,NKT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),     GPOLY  3
00103      4*         2  NSTR(18),NSUBR,NV,NVT,Y(12)                                   GPOLY  4
00104      5*          COMMON  /ECLST1/  KCHOUT,KPRNT,KPTNV(4),KNIT,KNIT1,KNIT2,
00104      6*         1  KNIT3,KNIT4,NUFF,KSTEDY
00105      7*          COMMON  /RARRAY/  IMAXR,R(1)                                     GPOLY  5
00106      8*          COMMON  /KANDV/ K                                                GPOLY  6
00107      9*          COMMON  /MISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,   GPOLY  7
00107     10*         1  LPSUM(5),MAXC1,MAXLP,MAXSLP,MAXSS1,NCOMPS,NEWDT,NLAST,NPASPD,  GPOLY  8
00107     11*         2  MINSS1,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX    GPOLY  9
00110     12*          COMMON  /CASE/ NCASE,NRSCS                                       GPOLY 10
00111     13*          COMMON  /CASE3/  NPLOTS,KRUN,PRNTO,TOUT,KPRUN,NXYZ,KPUNCH,PNCH
00112     14*          COMMON  /F21P/  CPF,RHOF,VISCF,WTMF,XKF
00113     15*          COMMON  /PROPTY/  CPO,CP(99),CPCONL,CPCONV,CPCO2,CPOIL,CPOXY,CPTC,GPOLY 11
00113     16*         1  GAMGAS,RHOO,RHO(99),VISCO,VISC(99),VISGAS,WTMO,WTM(99),WTMCON,  GPOLY 12
00113     17*         2  WTMOIL,WTMTC,XKO,XK(99),XKGAS,XKLIQ,VISLIQ                    GPOLY 13
00114     18*          COMMON  /SOURCE/  A(19),B(19),CPA,CPB,IAI,IBI,NA,NB,NPFS,NPFST(6),GPOLY 14
00114     19*         1  NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,WTMA,WTMB,XKA,XKB          GPOLY 15
00115     20*          COMMON /POW/ POWER                                               GPOLY 16
00116     21*          COMMON/SHUTLE/PH,IPH,OLPH,IPHOLD,TIMEI,OPHN(6),NPLTS
00117     22*          COMMON /VLOC/ IP,IS,IC,IQ,IV,IVT,IEX,INEXK
00120     23*          DATA NX/1/
00122     24*          LOGICAL POWER                                                    GPOLY 17
00123     25*          DIMENSION V(1),K(1)                                              GPOLY 18
00124     26*          EQUIVALENCE (V,K)                                                GPOLY 19
00125     27*          LOGICAL  STEADY                                                  GPOLY 20
00125     28*      C
00125     29*      C INITIALIZE HAFCEE COUNTER AT START OF TRANSIENT
00125     30*      C
00126     31*          IF(.NOT.STEADY.AND.KSYPAS.EQ.0) NX=1
00126     32*      C     SHUT OFF ONE PASS PRINT OUT
00130     33*       22 IF(N.NE.22) GO TO 2250
00132     34*          CALL SK(100,22,10)
00133     35*     2250 CONTINUE
00134     36*          IF (N.NE.36)  GO TO 3650
00134     37*      C     STORE AB BAY STRUCTURE TEMP IN COLDPLATE COMR
00136     38*          CALL SV(R(81),52,60)
00137     39*     3650 CONTINUE
00140     40*       56 IF(N.NE.56 .AND. N.NE.57)  GO TO 5657
00142     41*          R(65)=0.0
00143     42*          R(70)=0.0
00143     43*      C     SUBLIMATOR STEADY-STATE SIMULATION
00143     44*      C     ASSUME A HX WITH CMIN/CMAX=0.0,  CMAX=ICE SIDE AT 32 F
```

```
00143      45*      C
00143      46*      C  ****************HISSION DEPENDENT*********************
00143      47*      C
00144      48*           IF(IPH.NE.2.AND.IPH.NE.3.AND.IPH.NE.18.AND.IPH.NE.19)  GO TO 5657
00146      49*           IF(A(1).LE.0.01)  GO TO 5657
00150      50*           CHIN=A(1)*CPA
00151      51*           R(68)=1.0-EXP(-R(67)/CHIN)
00152      52*           R(65)=CHIN*R(68)*(32.0-A(2))
00153      53*           R(2)=A(2)+R(65)/CHIN
00154      54*           R(70)=-R(65)/R(69)
00155      55*      5657 CONTINUE
00156      56*           IF(N.NE.59)  GO TO 5950
00160      57*           IF(NSTR(16).EQ.0.AND..NOT.STEADY)  GO TO 5950
00160      58*      C         FORCE CONVERGENCE OF HEAT LOAD AND HEAT TRANSFER FOR STEADY STATE
00162      59*           QLOAD=VV(60,65)
00163  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00163      60*           IF(QLOAD.EQ.0.0)  GO TO 5950
00165      61*           IF(ABS(1.0-R(65)/QLOAD).GT.0.03)  NEXT=60
00167      62*      5950 CONTINUE
00170      63*           IF(N.NE.65)  GO TO 6550
00172      64*           IF(NSTR(16).EQ.0.AND..NOT.STEADY)  GO TO 6550
00172      65*      C         FORCE CONVERGENCE OF HEAT LOAD AND HEAT TRANSFER FOR STEADY STATE
00174      66*           QLOAD=VV(66,65)
00175  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00175      67*           IF(QLOAD.EQ.0.0)  GO TO 6550
00177      68*           IF(ABS(1.0-R(65)/QLOAD).GT.0.03)  NEXT=66
00201      69*      6550 CONTINUE
00202      70*           IF(N.NE.68)  GO TO 6850
00204      71*           IF(NSTR(16).EQ.0.AND..NOT.STEADY)  GO TO 6850
00204      72*      C         FORCE CONVERGENCE OF HEAT LOAD AND HEAT TRANSFER FOR STEADY STATE
00206      73*           QLOAD=-VV(69,65)
00207  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00207      74*           IF(QLOAD.EQ.0.0)  GO TO 6850
00211      75*           IF(ABS(1.0-R(65)/QLOAD).GT.0.03)  NEXT=69
00213      76*      6850 CONTINUE
00214      77*           IF(N.NE.70)  GO TO 7080
00216      78*           IF(NSTR(16).EQ.0.AND..NOT.STEADY)  GO TO 7050
00216      79*      C         FORCE CONVERGENCE OF HEAT LOAD AND HEAT TRANSFER FOR STEADY STATE
00220      80*           QLOAD=-VV(71,65)
00221  *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00221      81*           IF(QLOAD.EQ.0.0)  GO TO 7050
00223      82*           IF(ABS(1.0-R(65)/QLOAD).GT.0.03)  NEXT=71
00225      83*      7050 CONTINUE
00226      84*
00226      85*      C         SET UP RADIATOR RETURN TEMP AND FLOW WHEN RADIATOR LOOP IS
00226      86*      C         NOT SOLVED
00226      87*           CALL SV(R(1),99,1)
00227      88*           TFOUT=40.
00227      89*      C
00227      90*      C  ****************HISSION DEPENDENT*********************
00227      91*      C
00230      92*           IF(IPH.LT.4.OR.IPH.GT.17) TFOUT=R(2)
00232      93*           CALL SV(TFOUT,99,2)
00233      94*      7080 CONTINUE
00234      95*           IF(N.NE.72)  GO TO 7280
00236      96*           R(65)=0.0
00237      97*           R(69)=0.0
00237      98*      C         NH3 EVAPORATOR SIMULATION
```

```
00237     99*      C
00237    100*      C  ****************MISSION DEPENDENT**********************
00237    101*      C
00240    102*            IF(IPH.LT.1)  GO TO 7273
00242    103*           IF(A(1).LE.0.0)  GO TO 7273
00244    104*            CA=A(1)*CPA
00245    105*            QREQD=CA*(A(2)-40.0)
00246    106*            UAREQD=6.0*QREQD/70.0
00247    107*            EFF=1.0
00250    108*            R(2)=40.0
00251    109*            IF(UAREQD.LE.R(67)) GO TO 7210
00251    110*      C          DEGRADED PERFORMANCE -- NOT ENOUGH UA TO HANDLE HEAT LOAD
00253    111*            R(2)=(CA*A(2)-5.0*R(67))/(CA*R(67)/6.0)
00254    112*            EFF=R(67)/UAREQD
00255    113*     7210   R(65)=CA*(R(2)-A(2))
00256    114*            R(69)=-R(65)/(R(68)*EFF)
00257    115*     7273 CONTINUE
00260    116*     7280 CONTINUE
00261    117*
00261    118*       78   IF(N.NE.78)  GO TO 7850
00263    119*           IF(NSTR(16).EQ.0.AND..NOT.STEADY) GO TO 7850
00263    120*      C          FORCE CONVERGENCE OF HEAT LOAD AND HEAT TRANSFER FOR STEADY STATE
00265    121*            QLOAD=VV(79,65)
00266   *DIAGNOSTIC*  THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00266    122*            IF(QLOAD.EQ.0.0)  GO TO 7850
00270    123*            IF(ABS(1.0-R(65)/QLOAD).GT.0.03)  NEXT=79
00272    124*     7850 CONTINUE
00273    125*            IF(N.NE.82)  GO TO 8250
00273    126*      C SET RETURN GAS TEMP FROM PAYLOAD COMPARTMENT
00275    127*            R(2)=75.
00276    128*            R(66)=A(1)*CPA*(R(2)-A(2))
00277    129*     8250 CONTINUE
00300    130*       84   IF(N.NE.84) GO TO 8450
00302    131*            IF(NSTR(16).EQ.0.AND..NOT.STEADY) GO TO 8450
00304    132*            TCAB2=TCAB1
00305    133*            TCAB1=VV(2,104)
00306    134*            TTOL=2.0/FLOAT(ITER2**2)
00307    135*            TTOL=AMAX1(0.05,TTOL)
00310    136*            IF(ABS(TCAB1-TCAB2).GT.TTOL) NEXT=8
00312    137*     8450 CONTINUE
00313    138*       90   IF(N.NE.90) GO TO 9050
00313    139*      C          SET GSE FREON OUTLET TEMP IF PHASE I
00315    140*            R(65)=0.0
00315    141*      C
00315    142*      C  ****************MISSION DEPENDENT**********************
00315    143*      C
00316    144*            IF(IPH.NE.1) GO TO 9050
00320    145*            R(2)=35.0
00321    146*            A(2)=VV(99,2)
00322    147*            CALL F2(A(2),R(2))
00323    148*            R(65)=A(1)*CPF*(R(2)-A(2))
00324    149*     9050 CONTINUE
00325    150*       92   IF(N.NE.92)  GO TO 9250
00325    151*      C          FLASH EVAPORATOR SIMULATION
00327    152*            R(65)=0.0
00330    153*            R(69)=0.0
00331    154*            IF(A(1).LE.0.0)  GO TO 9250
00333    155*            IF(A(2).LE.40.0) GO TO 9250
```

```
00333    156*      C
00333    157*      C  ******************MISSION DEPENDENT**********************
00333    158*      C
00335    159*            IF(IPH.EQ.1.OR.IPH.GE.20) GO TO 9250
00337    160*            CA=A(1)*CPA
00340    161*            QREQD=CA*(A(2)-40.0)
00341    162*            EFF=1.0
00342    163*            UAREQD=QREQD/10.0
00343    164*            R(2)=40.0
00344    165*            IF(UAREQD.LE.R(67))  GO TO 9210
00344    166*      C           DEGRADED PERFORMANCE -- NOT ENOUGH UA TO HANDLE HEAT LOAD
00346    167*            R(2)=(CA*A(2)+30.0*R(67))/(CA+R(67))
00347    168*            EFF=R(67)/UAREQD
00350    169*       9210 R(65)=CA*(R(2)-A(2))
00351    170*            R(69)=-R(65)/(R(68)*EFF)
00352    171*       9250 CONTINUE
00353    172*
00353    173*
00353    174*            IF(N.NE.NLAST) GO TO 99999
00355    175*
00355    176*            ITER2=ITER2+1
00355    177*      C           RESET SYSTEM TIME INCREMENT
00356    178*            DTIME=1.
00357    179*
00357    180*
00357    181*            IF(KCHOUT.EQ.0)  GO TO 99998
00357    182*      C           PRINT SCHEMATICS AFTER EVERY SYSTEM PASS
00361    183*            TIME1=TIME
00362    184*            CALL ARSGAS
00363    185*            CALL ARSH2O
00364    186*            CALL FCL
00365    187*       99998 CONTINUE
00366    188*
00366    189*
00366    190*      C           FIND SPLIT RATIO FOR CABIN TEMP CONTROL VALVE
00366    191*            TCAB=VV(2,104)
00367    192*            TSET=70.0
00370    193*            IF(KSTEDY.EQ.0.AND..NOT.STEADY) GO TO 8635
00372    194*            CALL HAFCEE(SR86,TSET,TCAB,0.,.6786,.05,NX,SRL,SRH,NSTR)
00373    195*            GO TO 8650
00374    196*       8635 CONTINUE
00375    197*            SR86=VV(86,65)
00376    *DIAGNOSTIC* THE TEST FOR EQUALITY BETWEEN NON-INTEGERS MAY NOT BE MEANINGFUL.
00376    198*            IF(SR86.EQ.0.0.AND.TCAB.GT.TSET) GO TO 8650
00400    199*            IF(KSYPAS.EQ.0) GO TO 8636
00402    200*            IF(TCAB.LT.TSET .AND. TCAB0.LT.TSET)  GO TO 8640
00404    201*       8636 CONTINUE
00405    202*            ITER1=0
00406    203*            CALL ESTIM(SR86,TCAB,TSET,SR860,TCAB0,TSET0,1.0,ITER1,NSTR(1))
00407    204*            GO TO 8645
00410    205*       8640 SR86=AMAX1(0.05,1.005*SR86)
00411    206*       8645 CONTINUE
00412    207*            SR86=AMIN1(SR86,0.6786)
00413    208*       8650 CONTINUE
00414    209*            CALL SV(SR86,86,65)
00415    210*
00415    211*            IF(KSYPAS.EQ.0)  GO TO 99999
00417    212*            IF(MOD(KSYPAS,15).NE.0) GO TO 99999
```

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00417   213*      C          PERFORM 10 SYSTEM PASSES IN EACH MISSION PHASE THEN
00417   214*      C                    2. FORCE 1 MORE SYTEM PASS AT END OF OLD MISSION
00417   215*      C                    PHASE TO SUPPLY PLOT DATA
00421   216*                 PHI=PH+1.0
00422   217*                 DTIME=VALUE(999.,PHI,0.0)-TIME-DTIME
00423   218*                 ITER2=1
00424   219*                 IF(NPLOTS.GT.0) CALL TAPEIT
00426   220*                 NX=1
00427   221*      99999 CONTINUE                                                    *NEW
00430   222*                                                                       *NEW
00430   223*            C                                                          *NEW
00430   224*            C                                                          *NEW
00430   225*            C     THE FOLLOWING CARDS INSERTED TO ADD APPLIANCES       *NEW
00430   226*            C                                                          *NEW
00430   227*            C                                                          *NEW
00430   228*                 IF (N .EQ. 2) GO TO 200                               *NEW
00432   229*                 IF (N .EQ. 121) GO TO 12100                           *NEW
00434   230*                 IF (N .EQ. 125) GO TO 12500                           *NEW
00436   231*                 IF (N .EQ. 126) GO TO 12600                           *NEW
00440   232*                 RETURN                                                *NEW
00440   233*      C          SET CABIN FLOWS TO DRYJOHN                            *NEW
00441   234*           200 DUH=0.                                                   *NEW
00442   235*                 IF (IPH.EQ.13) DUH=85.2                               *NEW
00444   236*                 IF (IPH.GE.14) DUH=149.1                              *NEW
00446   237*                 DUH2=DUH/R(1)                                         *NEW
00447   238*                 R(20)=DUH                                             *NEW
00450   239*                 R(24)=R( 5)*DUH2                                      *NEW
00451   240*                 R(25)=R( 6)*DUH2                                      *NEW
00452   241*                 R(26)=R( 7)*DUH2                                      *NEW
00453   242*                 R(29)=R(10)*DUH2                                      *NEW
00454   243*                 R(30)=R(11)*DUH2                                      *NEW
00455   244*                 R(31)=R(12)*DUH2                                      *NEW
00456   245*                 R(32)=R(13)*DUH2                                      *NEW
00457   246*                 R(33)=R(14)*DUH2                                      *NEW
00460   247*                 RETURN                                                *NEW
00460   248*      C          COMPUTE DRYJOHN PLOTTING PARAMETERS                   *NEW
00461   249*           12100 CONTINUE                                               *NEW
00462   250*                 CALL RH(R(1),DUH,R( 80),N)                            *NEW
00463   251*                 RETURN                                                *NEW
```

```
00463    252*      C        DRYJOHN WATER SEPARATOR                                    *NEW
00464    253*    12500 IF (B(1) .LT. .001) RETURN                                     *NEW
00466    254*          R(1)=R(26)                                                     *NEW
00467    255*          R(26)=0.                                                       *NEW
00470    256*          R(20)=R(24)+R(25)                                              *NEW
00471    257*          R(3)=R(22)                                                     *NEW
00472    258*          CPB=(R(24)*R(27)+R(25)*CPCONV)/(R(24)+R(25))                   *NEW
00473    259*          QLIQ=.5*(40.+17.)*3.412                                        *NEW
00474    260*          QAIR=.5*(100.+18.)*3.412                                       *NEW
00475    261*          IF (B(7) .GT. 2.) GO TO 12520                                  *NEW
00477    262*          QAIR=QAIR+QLIQ                                                 *NEW
00500    263*          R(2)=R(21)                                                     *NEW
00501    264*          GO TO 12530                                                    *NEW
00502    265*    12520 R(2)=R(21) + QLIQ/(R(1)*CP(1))                                 *NEW
00503    266*    12530 R(21)=R(21) + QAIR/(R(20)*CPB)                                 *NEW
00504    267*          R(4)=R(23)+12.                                                 *NEW
00505    268*          R(23)=R(23)+15.**.03613                                        *NEW
00506    269*          CALL PROP(R(1'     ;NPFT,CPA,WTHA,RHOA,VISCA,XKA)              *NEW
00507    270*          CALL PROP(R(20),NSF,NSFT,CPB,WTHB,RHOB,VISCB,XKB)              *NEW
00510    271*          RETURN                                                         *NEW
00510    272*      C      DRYJOHN OUTLET AIR FILTER PRESSURE DROP                    *NEW
00511    273*    12600 R(4)=R(3)-2.*.03613                                            *NEW
00511    274*      C                                                                  *NEW
00511    275*      C                                                                  *NEW
00512    276*          RETURN                                                         *NEW
00513    277*          END                                                            GPOLY194
                                                                                    GPOLY195

      END OF COMPILATION:        6 DIAGNOSTICS.
    GPOLY2          SYMBOLIC                    15 FEB 75  05:42:35   0  03223632   14   271  (DELETED)
    GPOLY2  CODE    RELOCATABLE                 15 FEB 75  05:42:35   1  03233154   84     1  (DELETED)
                                                                      0  03233300   14    81
```

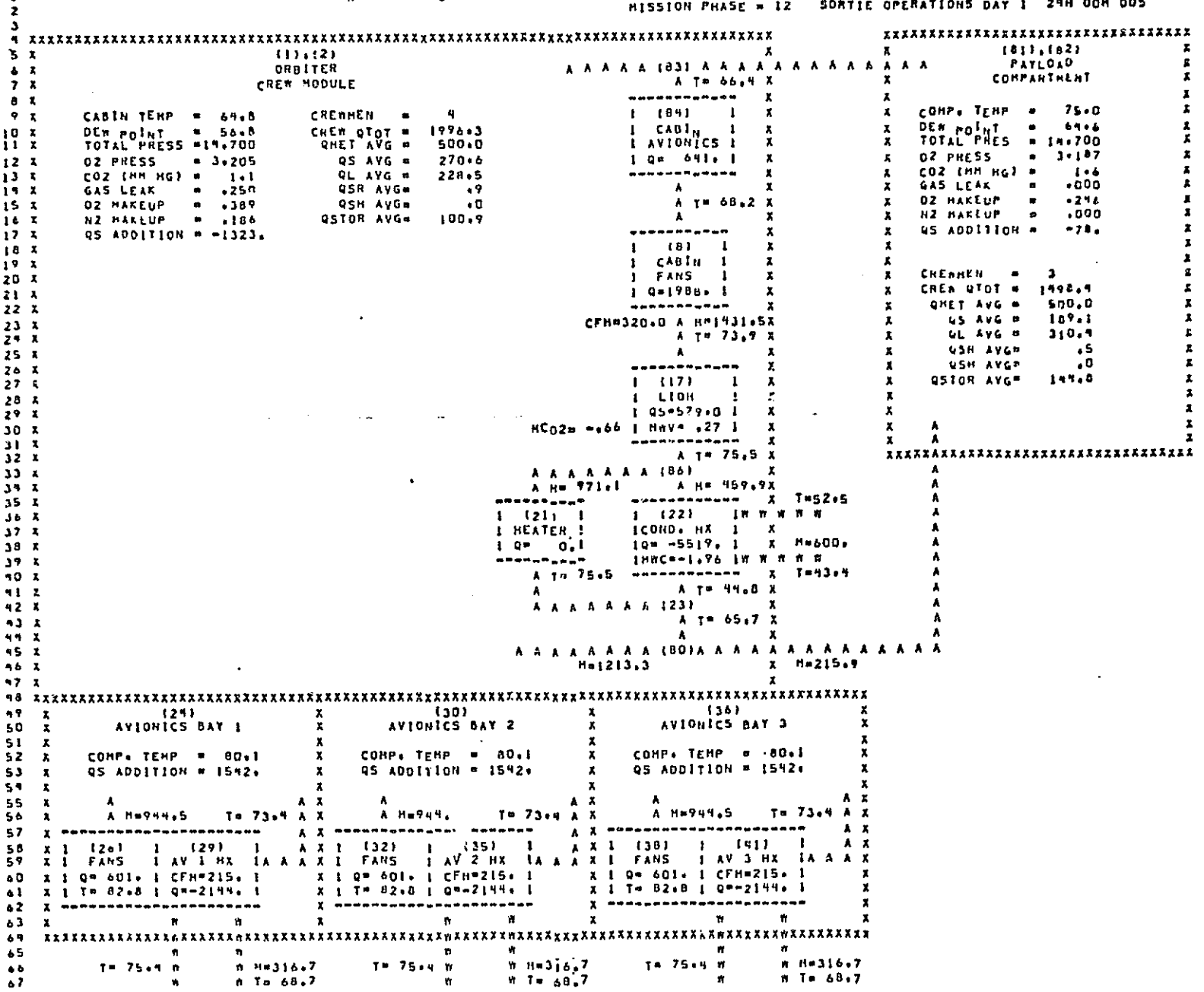
D2-118571-2

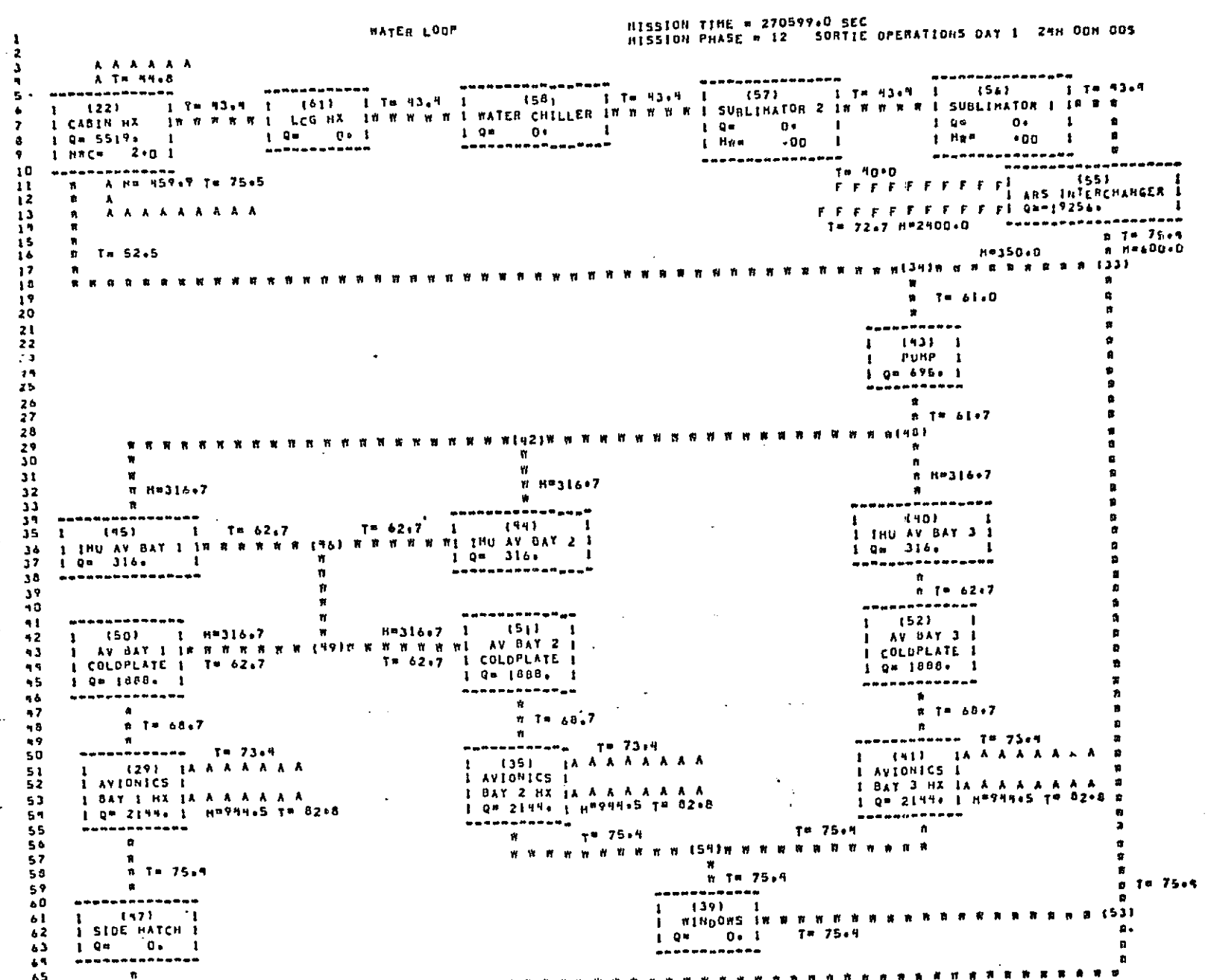
APPENDIX E

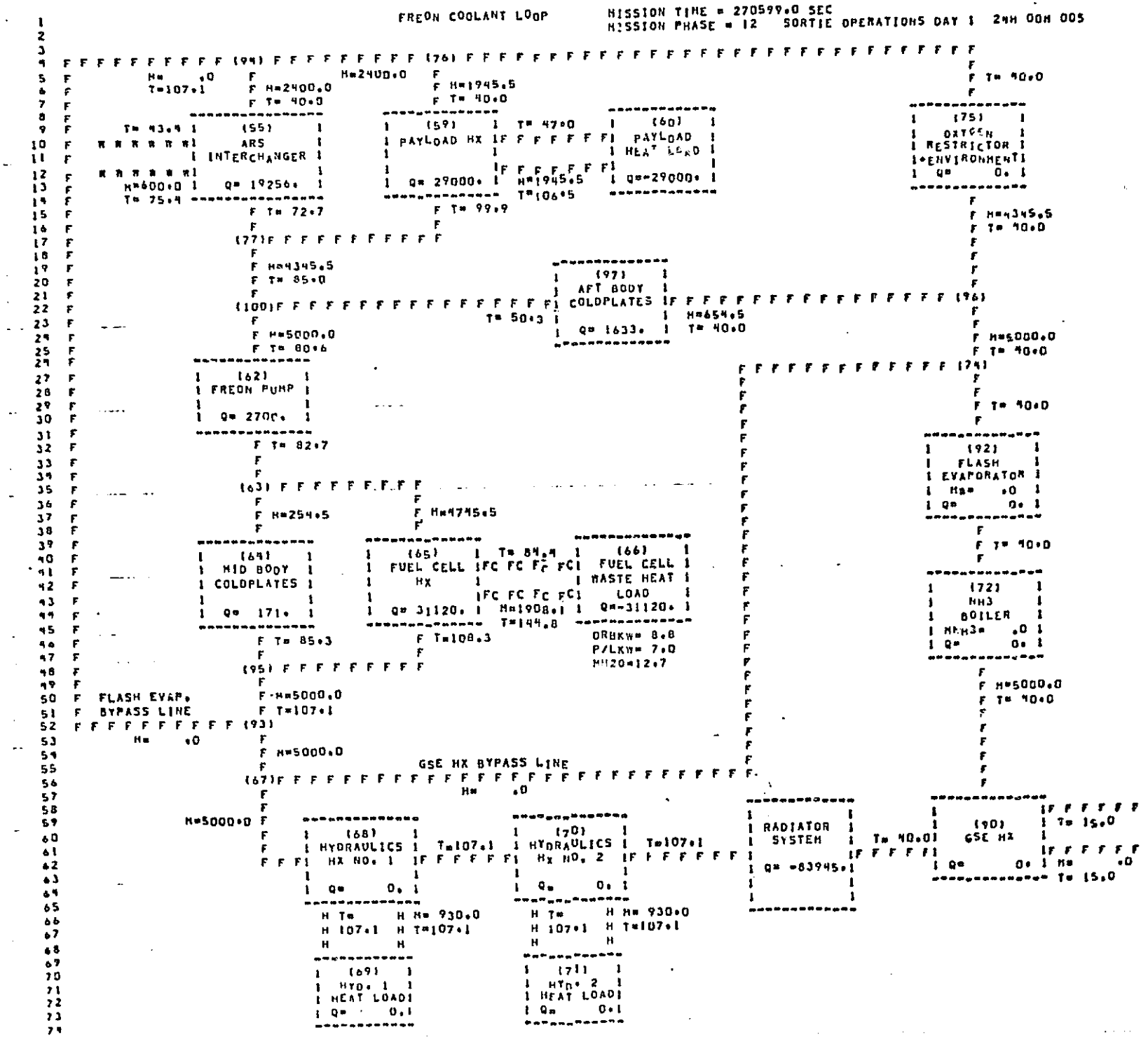
OUTPUT DATA FOR SHUTTLE ORBITER SIMULATION WITH APPLIANCES

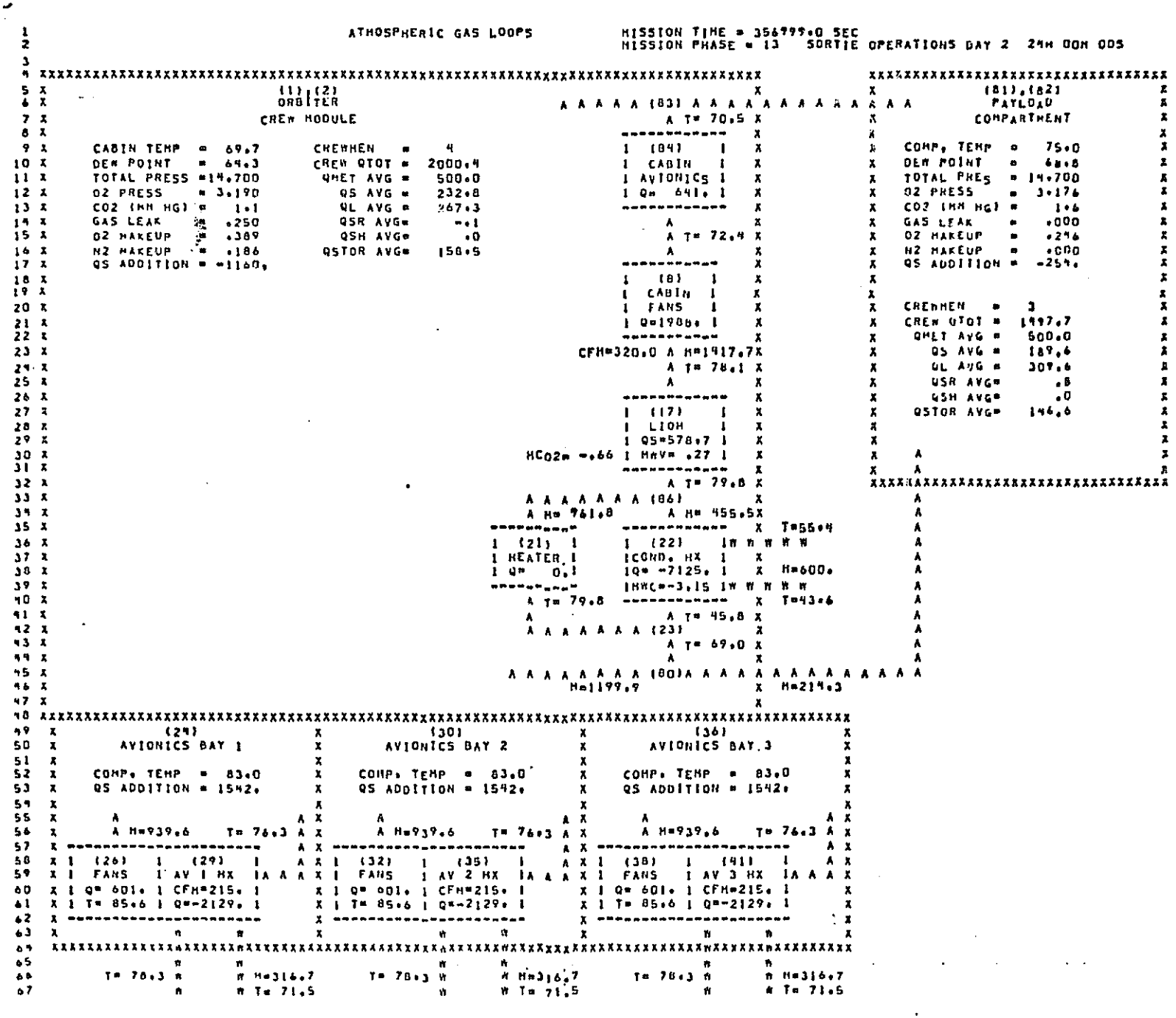
ATHOSPHERIC GAS LOOPS

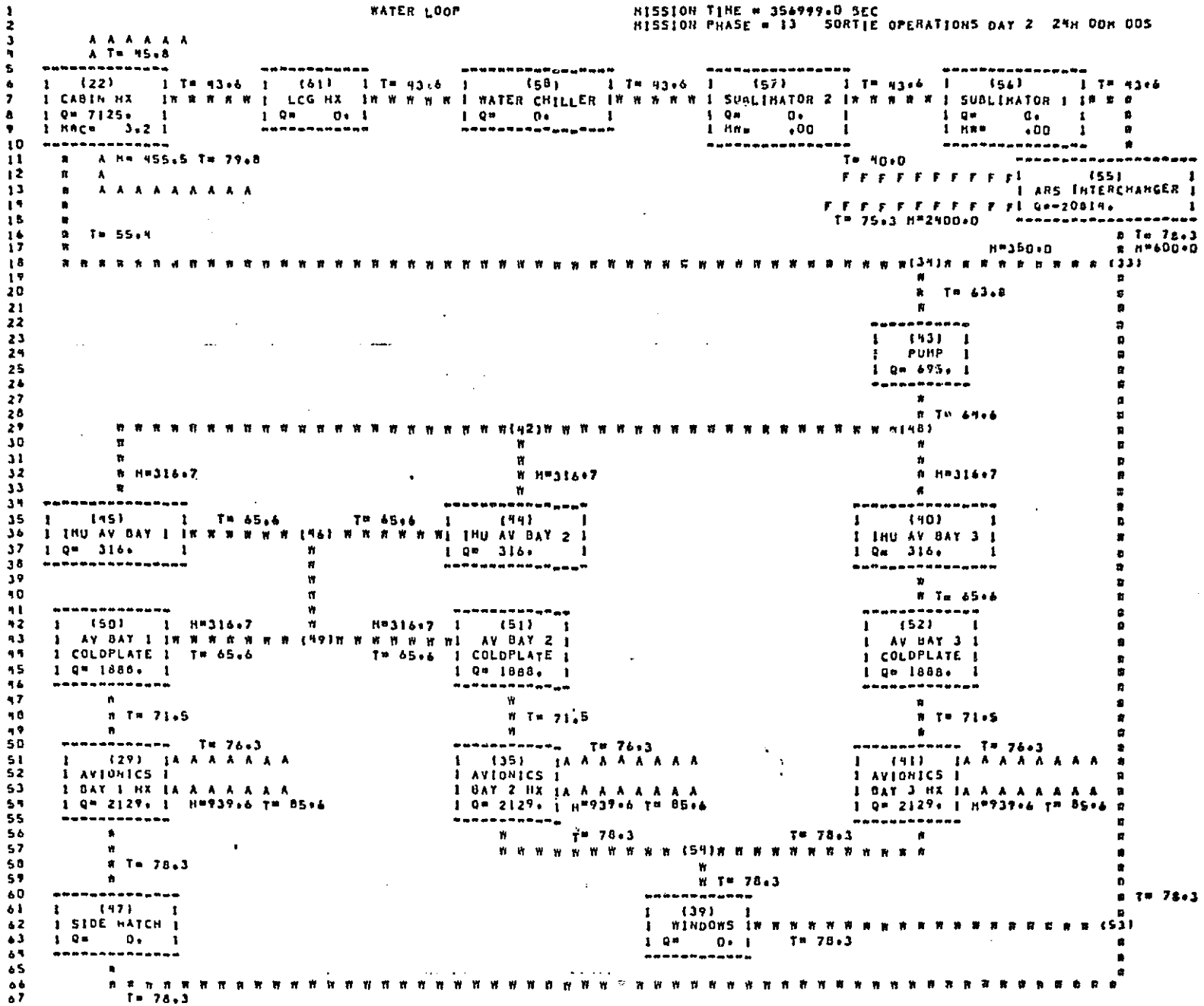
MISSION TIME = 270599.0 SEC
MISSION PHASE = 12 SORTIE OPERATIONS DAY 1 29H 00M 00S

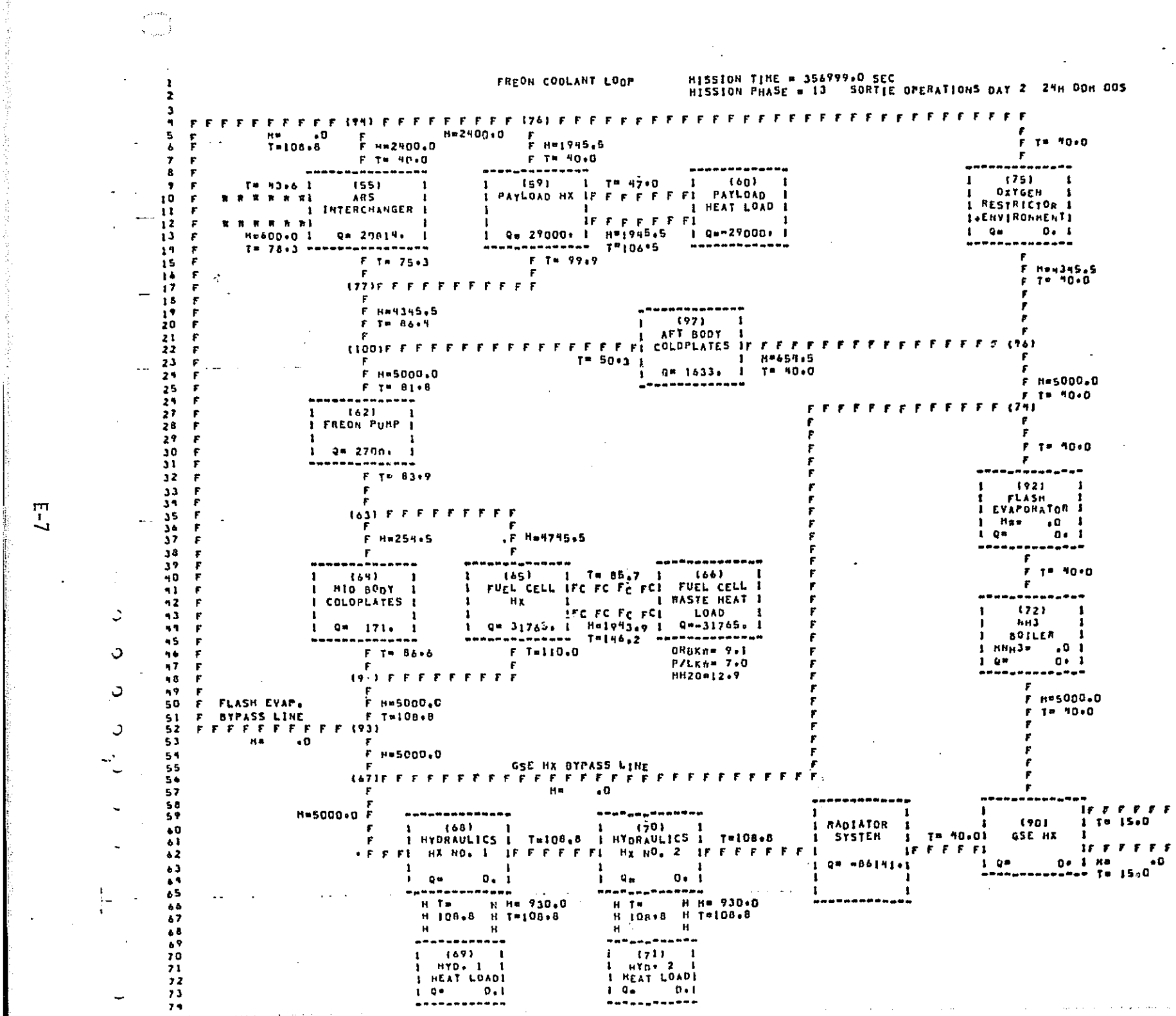


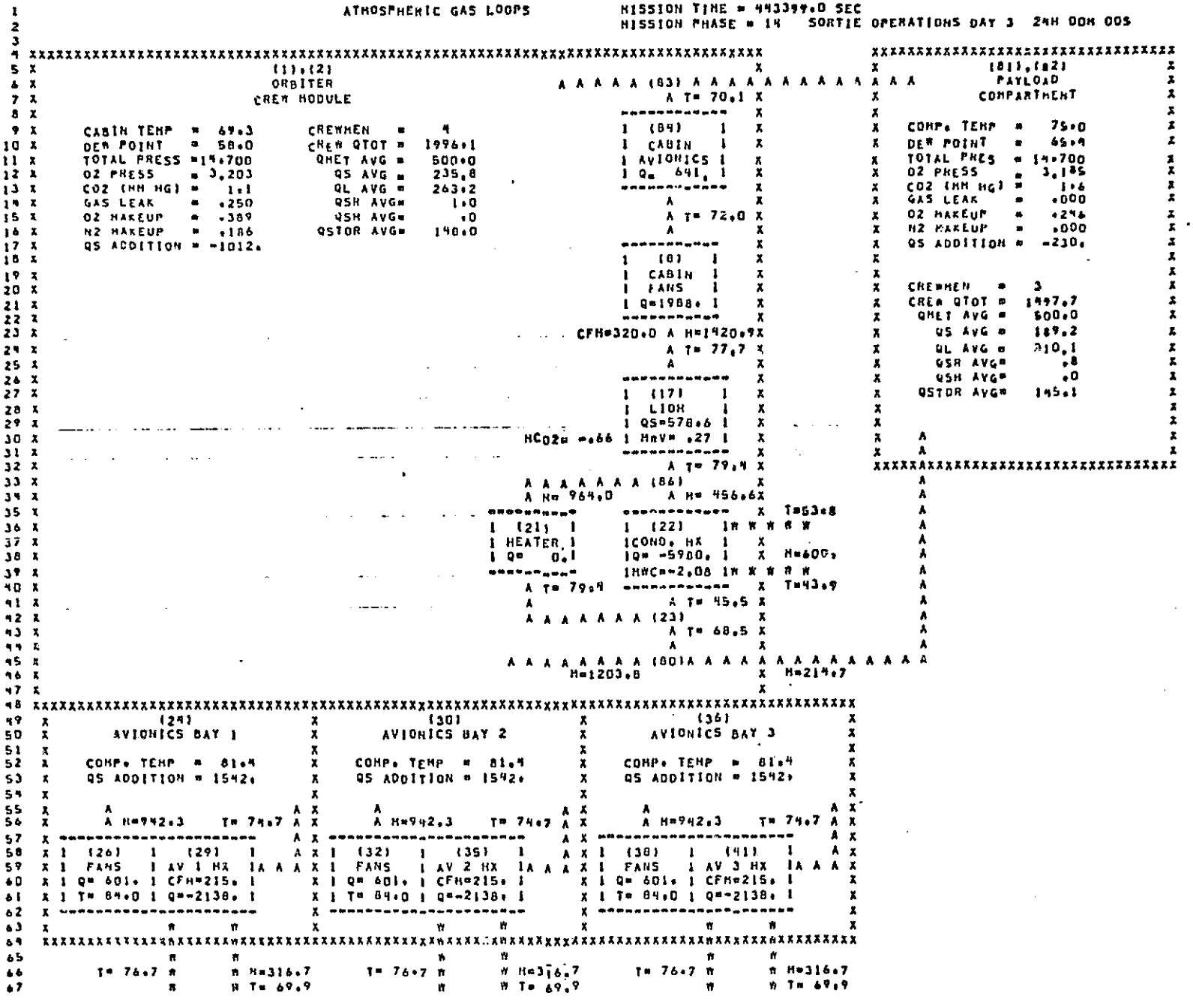

WATER LOOP
MISSION TIME = 270599.0 SEC
MISSION PHASE = 12 SORTIE OPERATIONS DAY 1 24H OOM OOS
(22) CABIN HX Q= 5519. HRC= 2.0 T= 43.9
(61) LCG HX Q= 0. T= 43.4
(58) WATER CHILLER Q= 0. T= 43.4
(57) SUBLIMATOR 2 Q= 0. Hw= .00 T= 43.9
(56) SUBLIMATOR 1 Q= 0. Hw= .00 T= 43.9
(55) ARS INTERCHANGER Q=-19256.
A A= 459.9 T= 75.5
T= 52.5
T= 40.0
T= 72.7 H=2400.0
H=350.0
T= 75.9
H=600.0
(34) T= 61.0
(33)
(43) PUMP Q= 696.
T= 61.7
(42) H=316.7
(40) H=316.7
(45) IHU AV BAY 1 Q= 316. T= 62.7
(96) T= 62.7
(94) IHU AV BAY 2 Q= 316.
(40) IHU AV BAY 3 Q= 316.
T= 62.7
(50) AV BAY 1 COLDPLATE Q= 1888. H=316.7 T= 62.7
(49) H=316.7 T= 62.7
(51) AV BAY 2 COLDPLATE Q= 1888.
(52) AV BAY 3 COLDPLATE Q= 1888.
T= 68.7
(29) AVIONICS BAY 1 HX Q= 2144. H=9446.5 T= 82.8
T= 73.4
(35) AVIONICS BAY 2 HX Q= 2144. H=9446.5 T= 82.8
(41) AVIONICS BAY 3 HX Q= 2144. H=9446.5 T= 82.8
T= 75.4
(54)
(39) WINDOWS Q= 0.
(47) SIDE HATCH Q= 0.
T= 75.9

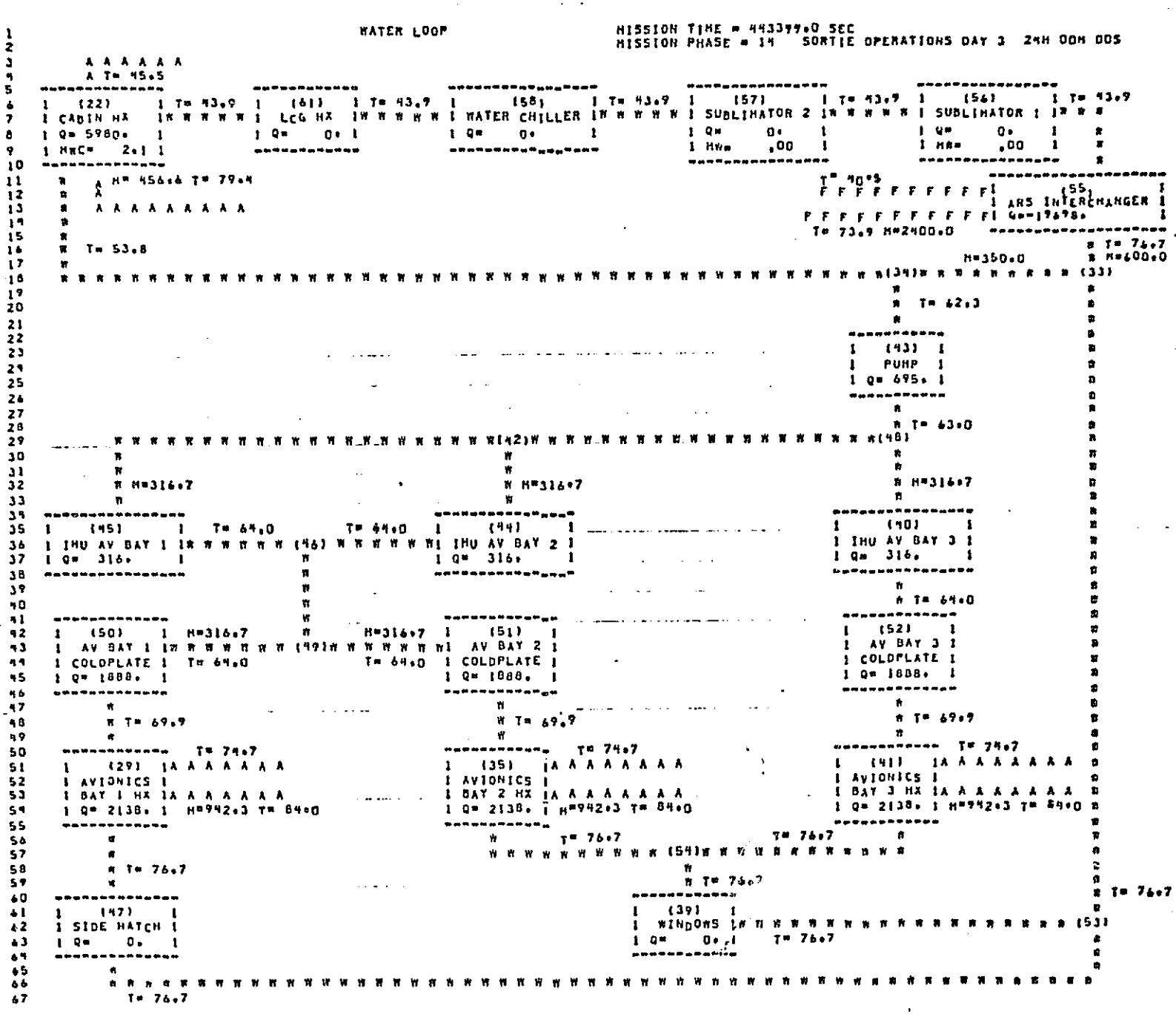

FREON COOLANT LOOP
MISSION TIME = 270599.0 SEC
MISSION PHASE = 12 SORTIE OPERATIONS DAY 1 2HR 00M 00S
(94)
H= .0
T=107.1
H=2400.0
T= 40.0
(76)
H=2400.0
H=1945.5
T= 40.0
(55)
ARS
INTERCHANGER
Q= 19256.
T= 43.4
H=600.0
T= 75.4
T= 72.7
(59)
PAYLOAD HX
Q= 29000.
T= 47.0
H=1945.5
T=106.5
T= 99.9
(60)
PAYLOAD
HEAT LOAD
Q=-29000.
(75)
OXYGEN
RESTRICTOR
ENVIRONMENT
Q= 0.
H=4345.5
T= 40.0
(77)
H=4345.5
T= 85.0
(97)
AFT BODY
COLDPLATES
Q= 1633.
H=654.5
T= 40.0
(96)
H=5000.0
T= 80.6
T= 40.0
(62)
FREON PUMP
Q= 2700.
T= 82.7
(74)
T= 40.0
(92)
FLASH
EVAPORATOR
H= .0
Q= 0.
(63)
H=254.5
H=4745.5
(64)
MID BODY
COLDPLATES
Q= 171.
(65)
FUEL CELL
HX
Q= 31120.
T= 84.4
H=1908.1
T=144.8
T=108.3
(66)
FUEL CELL
WASTE HEAT
LOAD
Q=-31120.
ORBKW= 8.8
P/LKW= 7.0
MH2O=12.7
T= 40.0
(72)
NH3
BOILER
NH3= .0
Q= 0.
H=5000.0
T= 40.0
(95)
H=5000.0
T=107.1
FLASH EVAP.
BYPASS LINE
H= .0
(93)
H=5000.0
GSE HX BYPASS LINE
(67)
H= .0
H=5000.0
(68)
HYDRAULICS
HX NO. 1
Q= 0.
T=107.1
H T= 107.1
H= 930.0
H T=107.1
(69)
HYD. 1
HEAT LOAD
Q= 0.
(70)
HYDRAULICS
HX NO. 2
Q= 0.
T=107.1
H T= 107.1
H= 930.0
H T=107.1
(71)
HYD. 2
HEAT LOAD
Q= 0.
RADIATOR
SYSTEM
Q= -83945.
T= 40.0
(90)
GSE HX
Q= 0.
T= 15.0
H= .0
T= 15.0

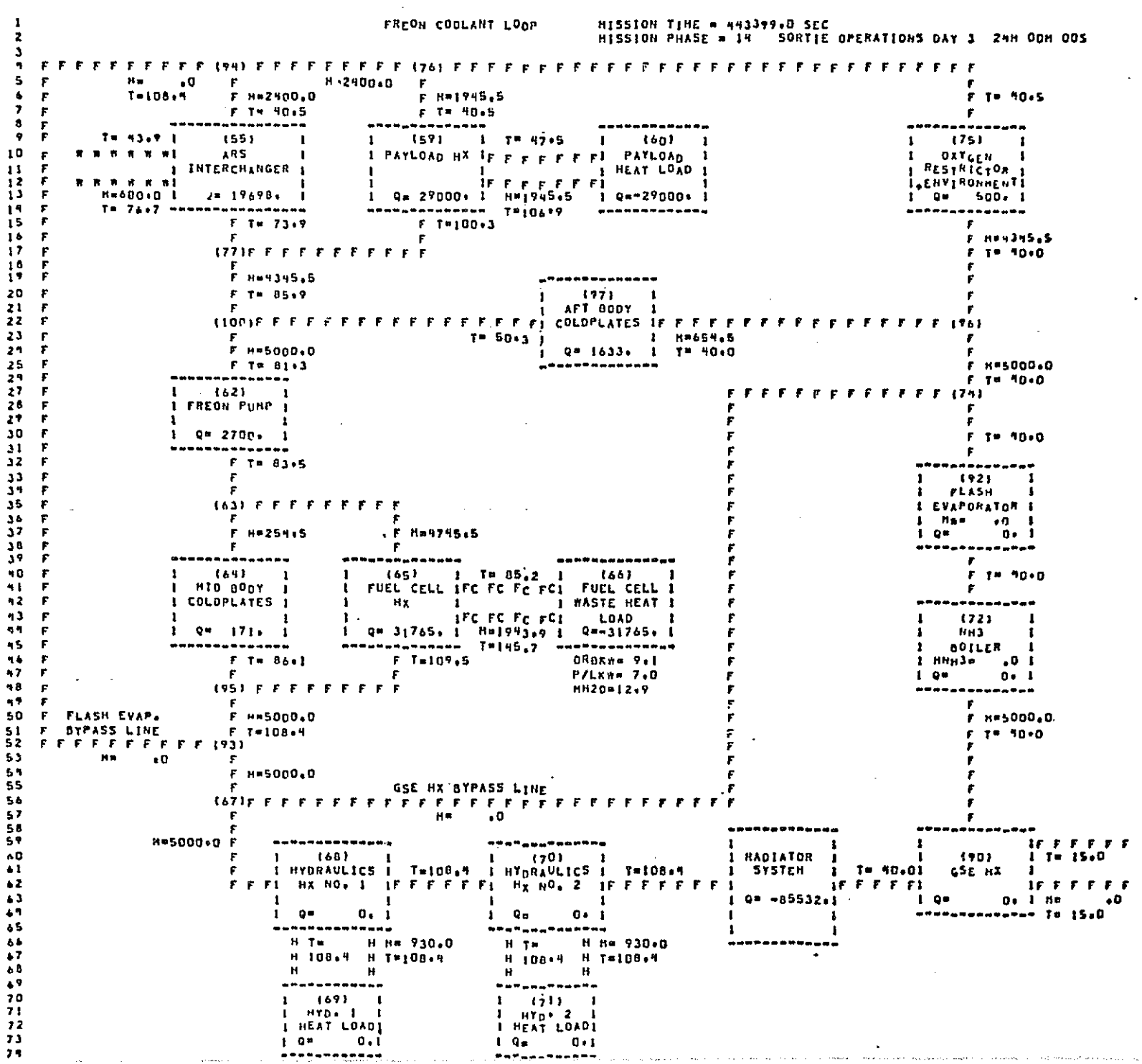


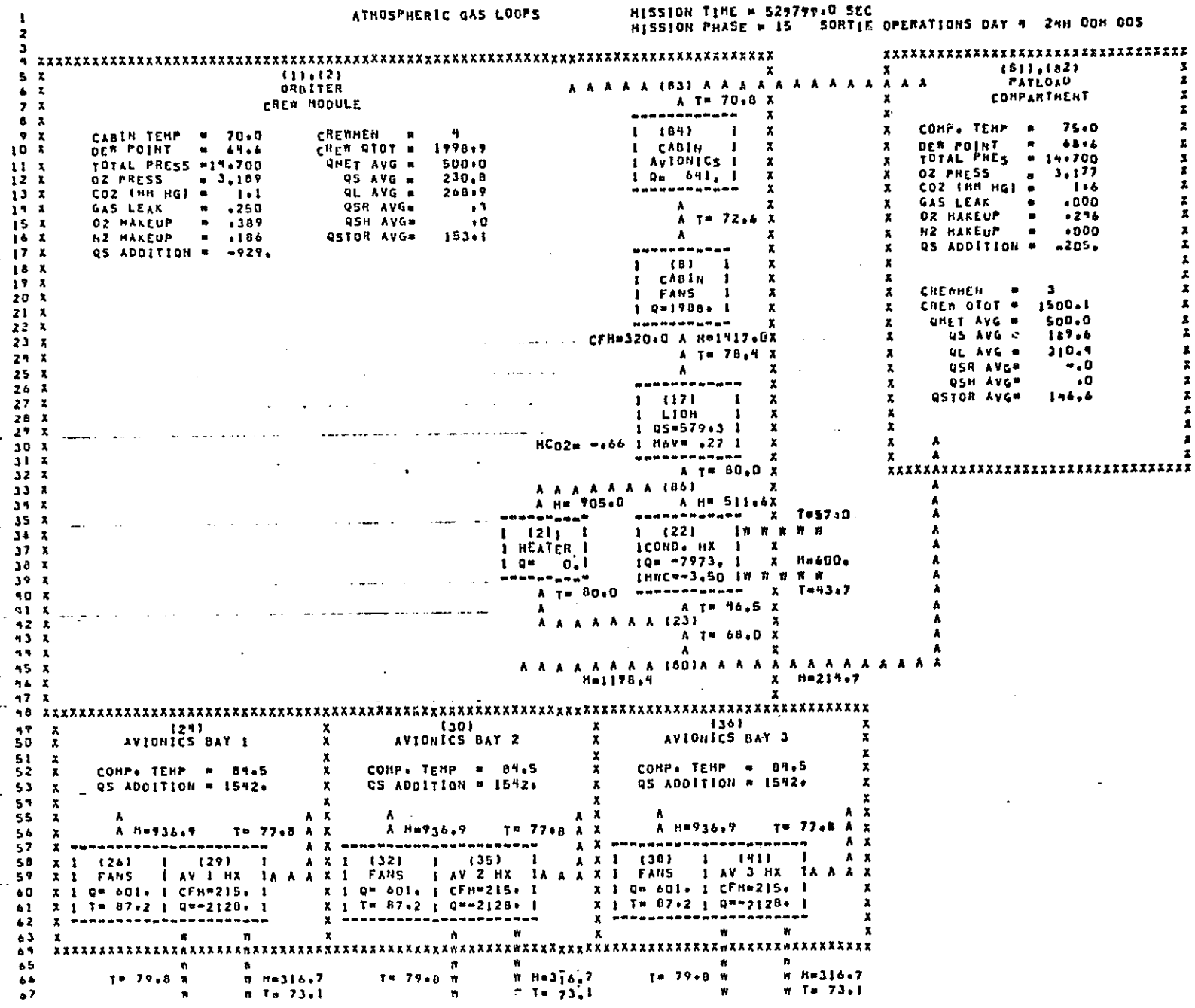


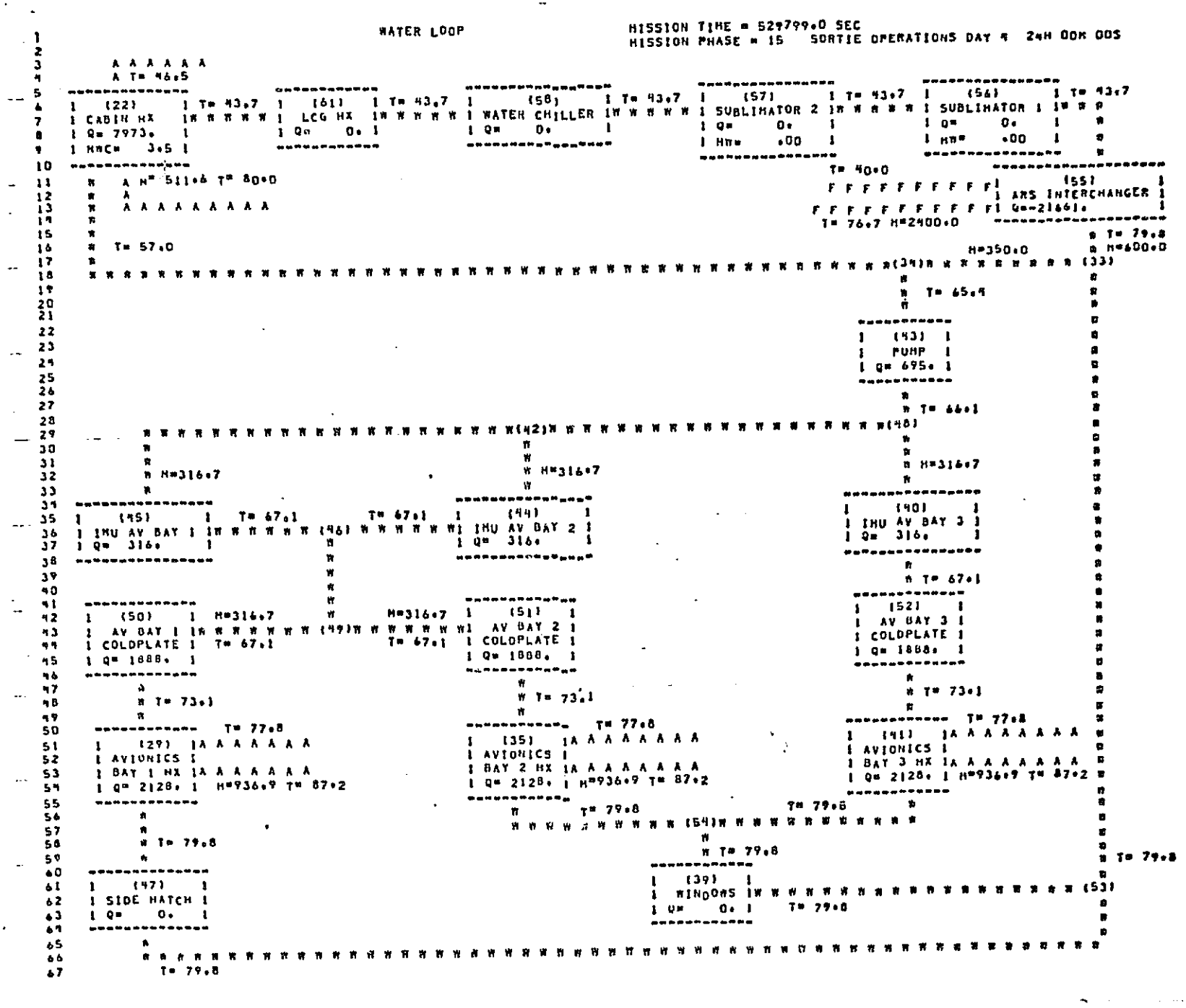

FREON COOLANT LOOP
MISSION TIME = 356999.0 SEC
MISSION PHASE = 13 SORTIE OPERATIONS DAY 2 24H 00M 00S
(94)
H= .0
T=108.8
H=2400.0
T= 40.0
(76)
H=2400.0
H=1945.5
T= 40.0
(55)
ARS
INTERCHANGER
Q= 29814.
H=600.0
T= 78.3
T= 43.6
T= 75.3
(59)
PAYLOAD HX
Q= 29000.
T= 47.0
H=1945.5
T=106.5
T= 99.9
(60)
PAYLOAD
HEAT LOAD
Q=-29000.
(75)
OXYGEN
RESTRICTOR
ENVIRONMENT
Q= 0.
H=4345.5
T= 40.0
(77)
H=4345.5
T= 86.4
(97)
AFT BODY
COLDPLATES
Q= 1633.
T= 50.3
H=4541.5
T= 40.0
(100)
H=5000.0
T= 81.8
(96)
H=5000.0
T= 40.0
(62)
FREON PUMP
Q= 2700.
T= 83.9
(74)
T= 40.0
(92)
FLASH
EVAPORATOR
Hx= .0
Q= 0.
(63)
H=254.5
H=4745.5
(64)
MID BODY
COLDPLATES
Q= 171.
(65)
FUEL CELL
Hx
Q= 31765.
T= 88.7
H=1943.9
T=146.2
(66)
FUEL CELL
WASTE HEAT
LOAD
Q=-31765.
ORUKn= 9.1
P/LKn= 7.0
HH2O=12.9
T=110.0
T= 86.6
(72)
HH3
BOILER
HHH3= .0
Q= 0.
(91)
H=5000.0
T=108.8
FLASH EVAP.
BYPASS LINE
H= .0
H=5000.0
GSE HX BYPASS LINE
(67)
H= .0
H=5000.0
(68)
HYDRAULICS
HX NO. 1
Q= 0.
T=108.8
H T= N H= 930.0
H 108.8 H T=108.8
(70)
HYDRAULICS
HX NO. 2
Q= 0.
T=108.8
H T= H H= 930.0
H 108.8 H T=108.8
(69)
HYD. 1
HEAT LOAD
Q= 0.
(71)
HYD. 2
HEAT LOAD
Q= 0.
RADIATOR
SYSTEM
Q= -86141.
T= 40.0
(90)
GSE HX
Q= 0.
H= .0
T= 15.0







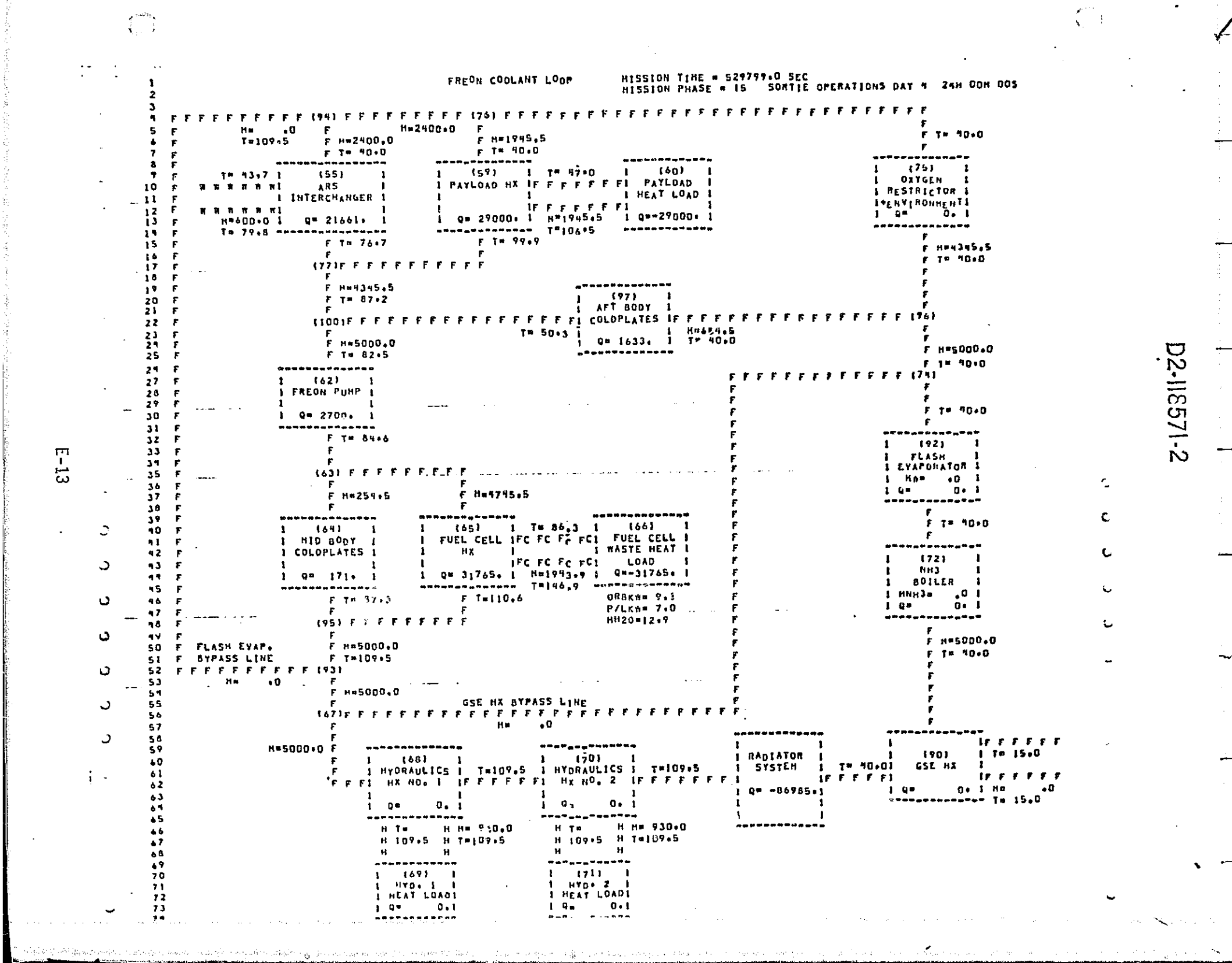


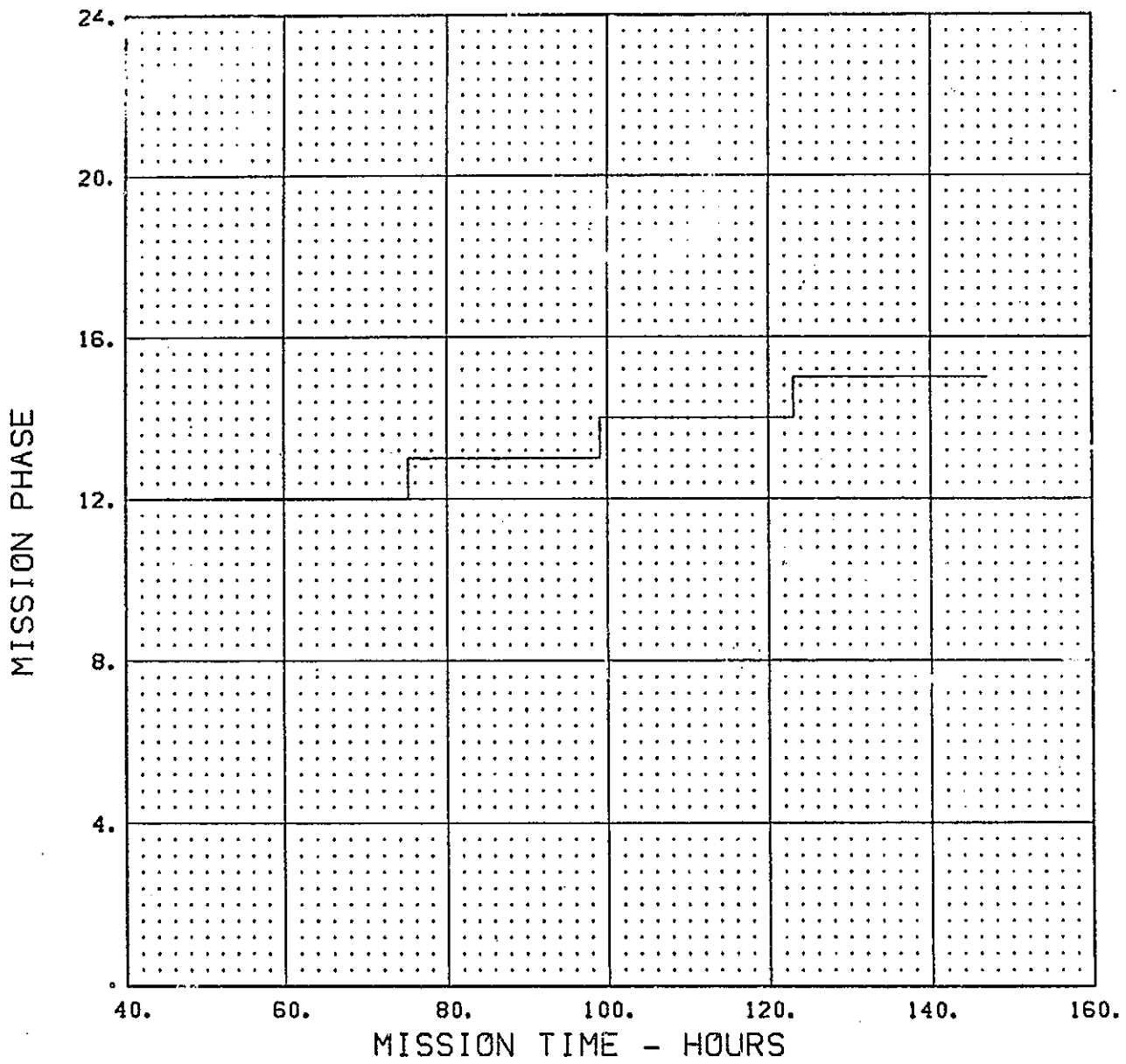


ORIGINAL PAGE IS
OF POOR QUALITY

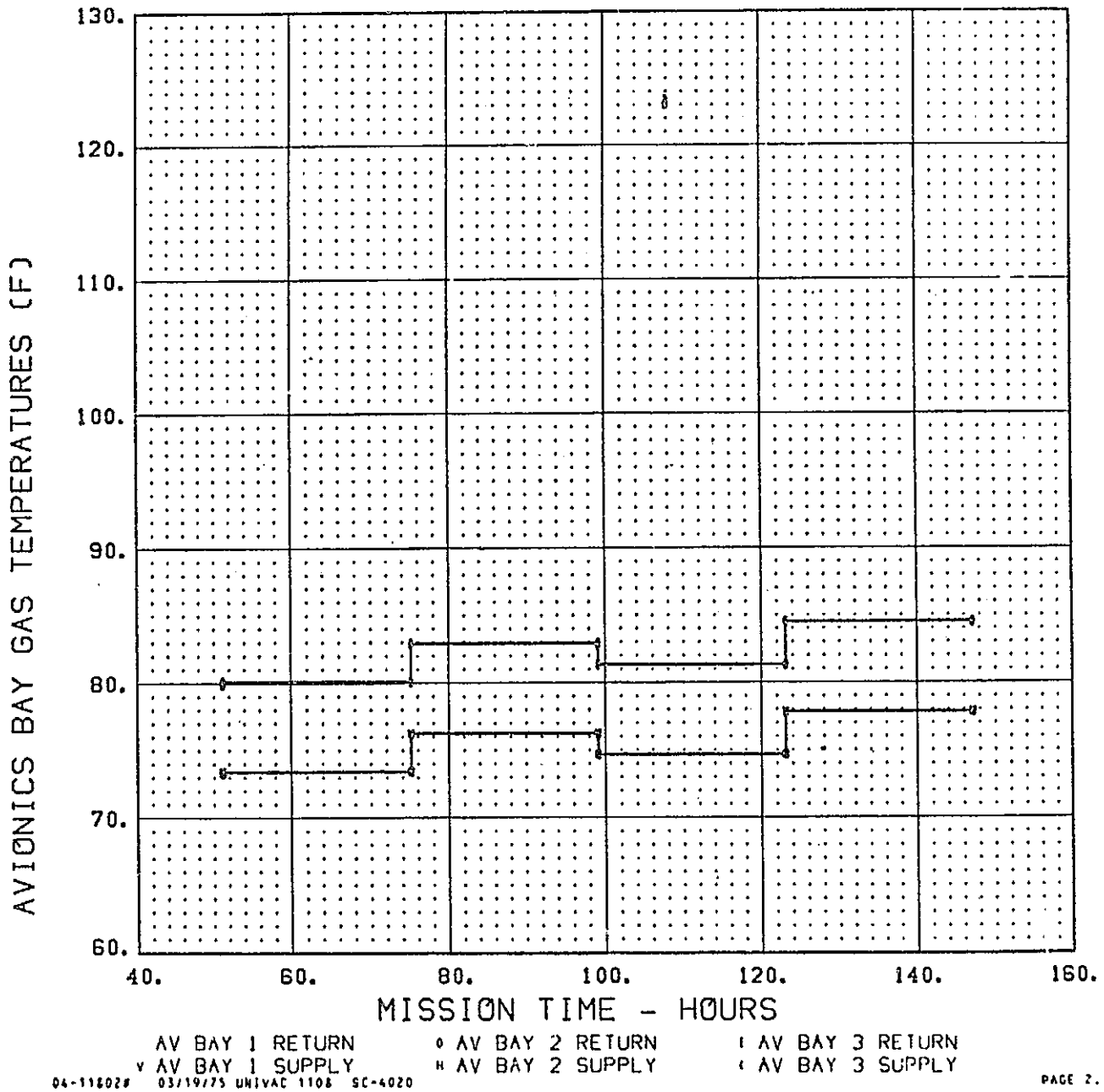
E-12

D2-118571-2


FREON COOLANT LOOP
MISSION TIME = 529799.0 SEC
MISSION PHASE = IS SORTIE OPERATIONS DAY 4 24H 00M 00S
(94)
H= .0
T=109.5
H=2400.0
(76)
H=2400.0
T= 40.0
H=1945.5
T= 40.0
(55)
ARS
INTERCHANGER
Q= 21661.
T= 43.7
H=600.0
T= 79.8
T= 76.7
T= 99.9
(59)
PAYLOAD HX
Q= 29000.
T= 47.0
(60)
PAYLOAD
HEAT LOAD
Q=-29000.
H=1945.5
T=106.5
(75)
OXYGEN
RESTRICTOR
ENVIRONMENT
Q= 0.
H=4345.5
T= 40.0
(77)
H=4345.5
T= 87.2
(97)
AFT BODY
COLDPLATES
Q= 1633.
T= 50.3
H=6654.5
T= 40.0
(100)
H=5000.0
T= 82.5
H=5000.0
T= 40.0
(62)
FREON PUMP
Q= 2700.
T= 84.6
(74)
T= 40.0
(92)
FLASH
EVAPORATOR
KA= .0
Q= 0.
(63)
H=2546.6
H=4745.5
(64)
MID BODY
COLDPLATES
Q= 171.
(65)
FUEL CELL
HX
Q= 31765.
T= 86.3
H=1993.9
T=146.9
(66)
FUEL CELL
WASTE HEAT
LOAD
Q=-31765.
ORBKW= 9.3
P/LKW= 7.0
HH20=12.9
T= 37.3
T=110.6
(72)
NH3
BOILER
HNH3= .0
Q= 0.
(95)
FLASH EVAP.
BYPASS LINE
H= .0
H=5000.0
T=109.5
H=5000.0
H=5000.0
T= 40.0
(67)
GSE HX BYPASS LINE
H= .0
(68)
HYDRAULICS
HX NO. 1
Q= 0.
T=109.5
H= 930.0
T=109.5
(70)
HYDRAULICS
HX NO. 2
Q= 0.
T=109.5
H= 930.0
T=109.5
(69)
HYD. 1
HEAT LOAD
Q= 0.
(71)
HYD. 2
HEAT LOAD
Q= 0.
RADIATOR
SYSTEM
Q= -86985.
T= 40.0
(90)
GSE HX
Q= 0.
H= .0
T= 15.0


SHUTTLE SIMULATION *** WITH APPLIANCES
24.
20.
16.
12.
8.
4.
0
MISSION PHASE
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS

G189 CASE 'SHUTTLE SIMULATION *** WITH APPLIANCES



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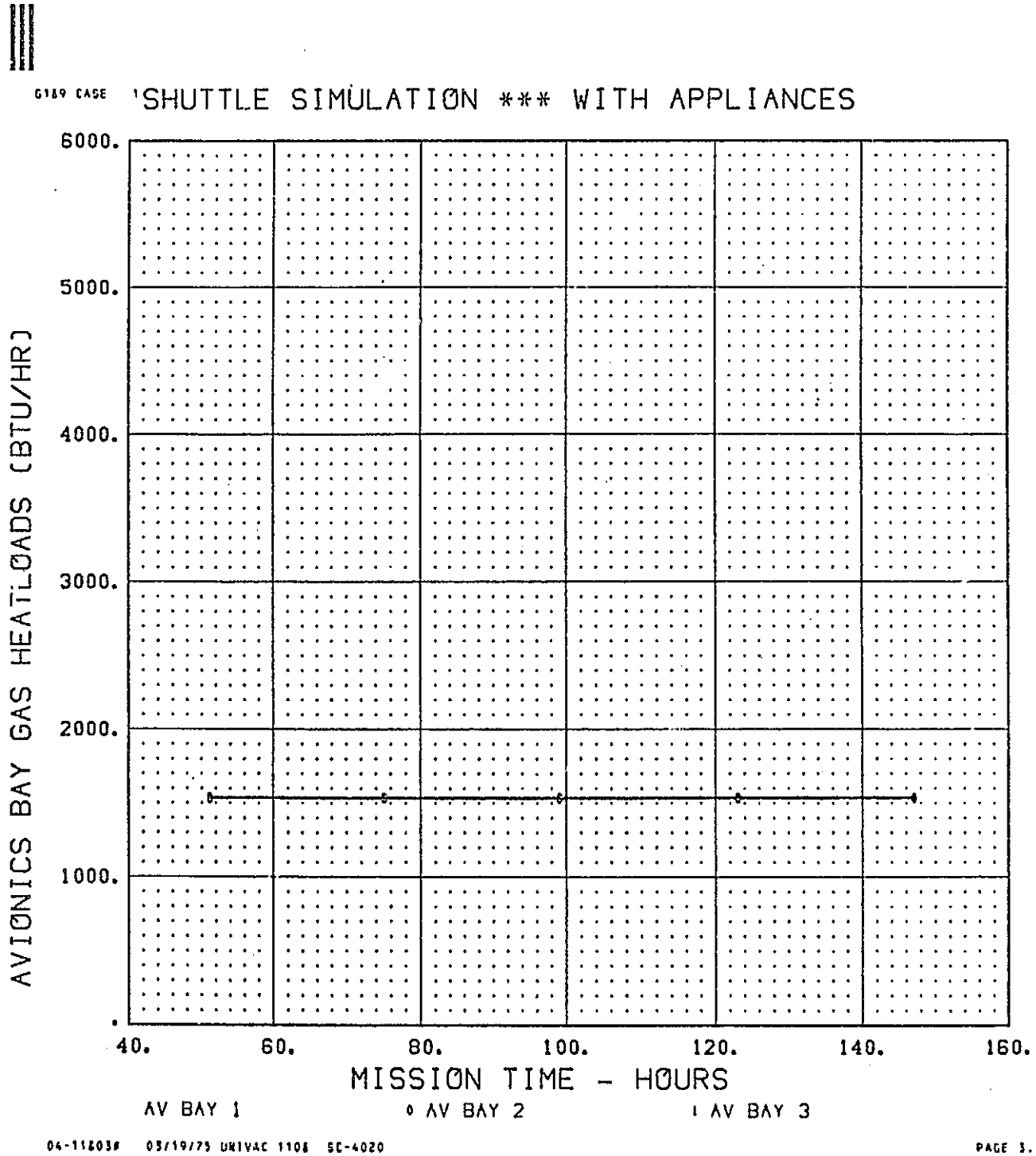
PAGE 2.


G189 CASE 'SHUTTLE SIMULATION *** WITH APPLIANCES
AVIONICS BAY GAS HEATLOADS (BTU/HR)
6000.
5000.
4000.
3000.
2000.
1000.
.
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
AV BAY 1
0 AV BAY 2
1 AV BAY 3
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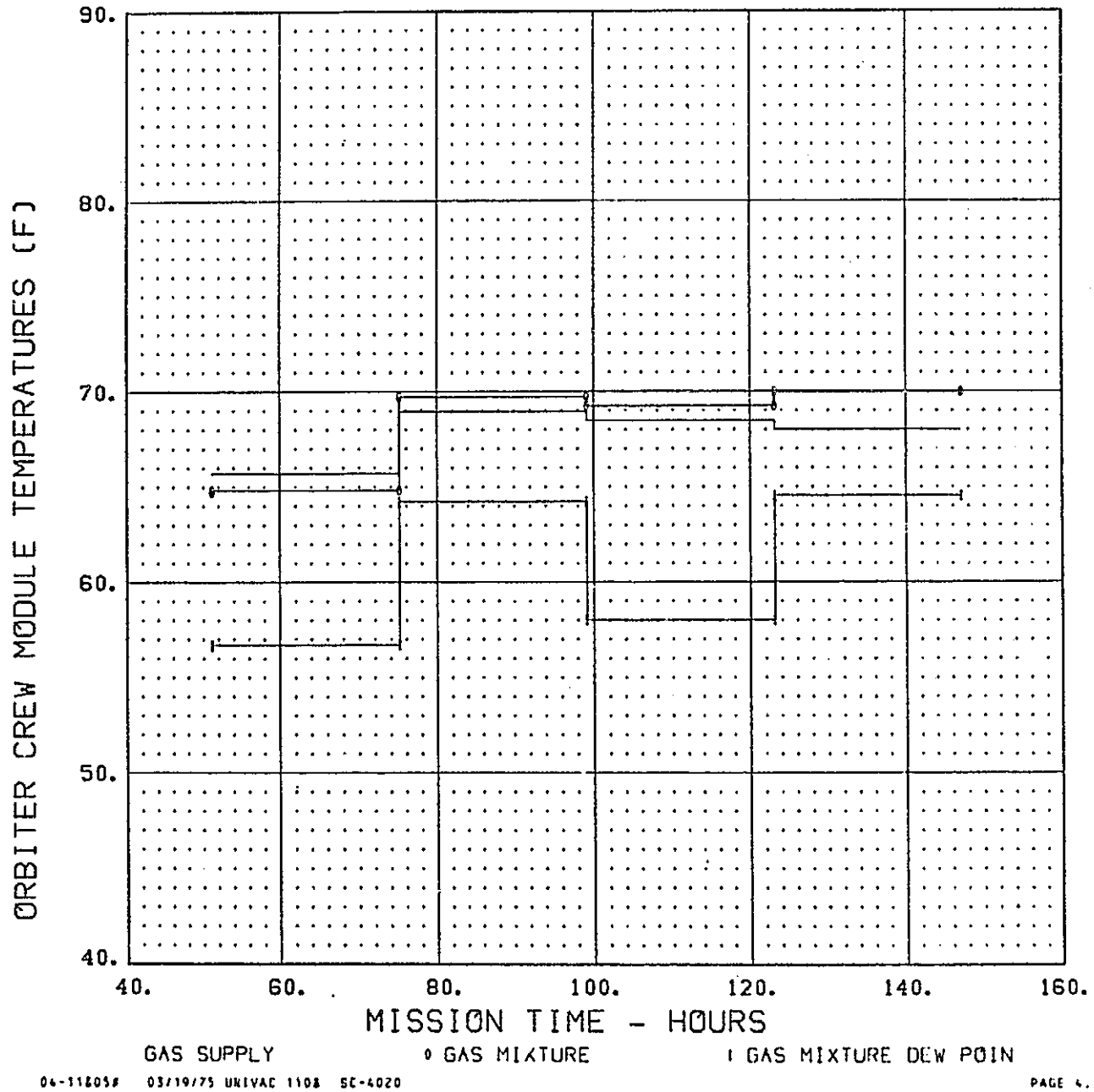
PAGE 3.

G189 CASE 'SHUTTLE SIMULATION *** WITH APPLIANCES



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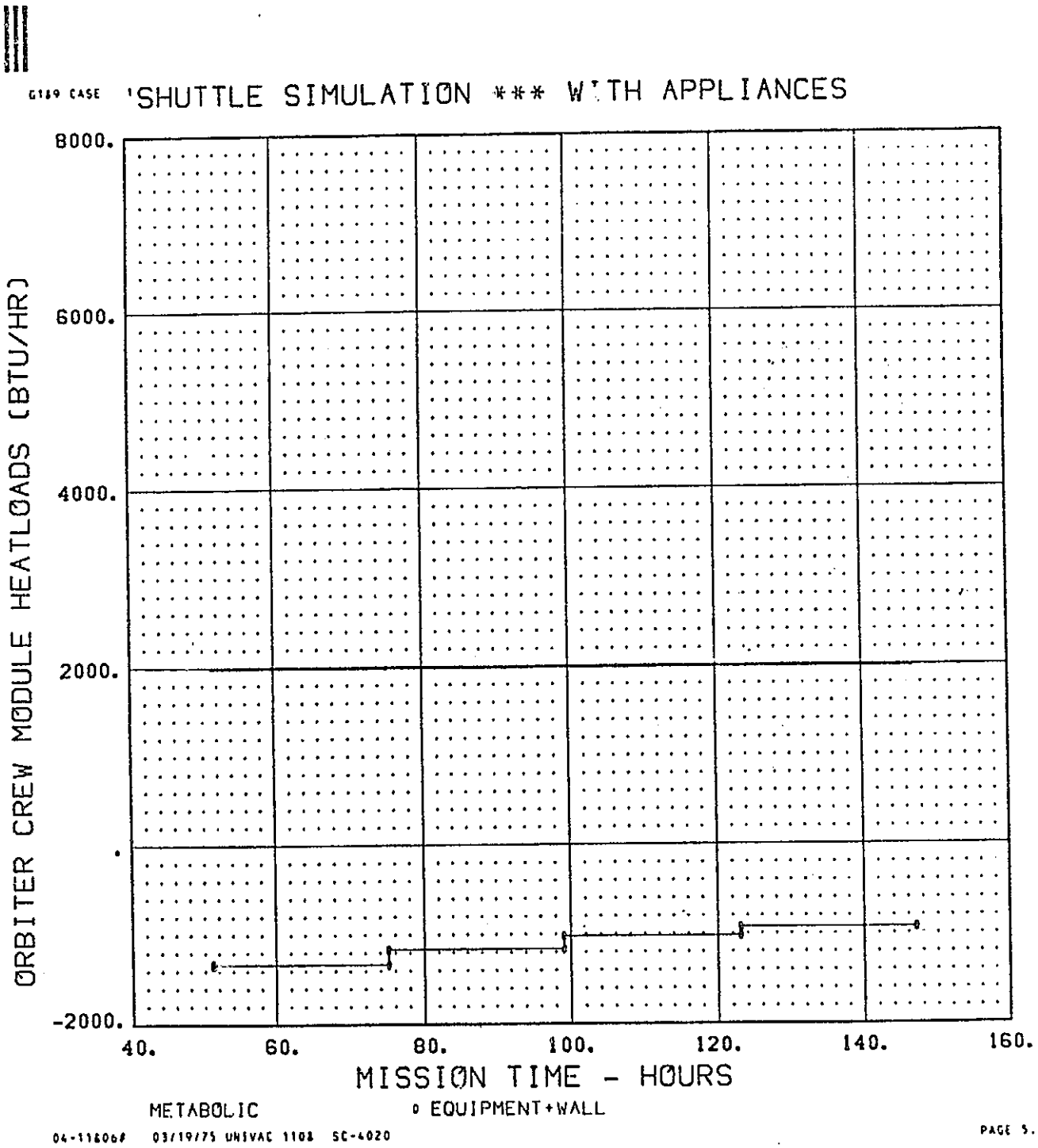
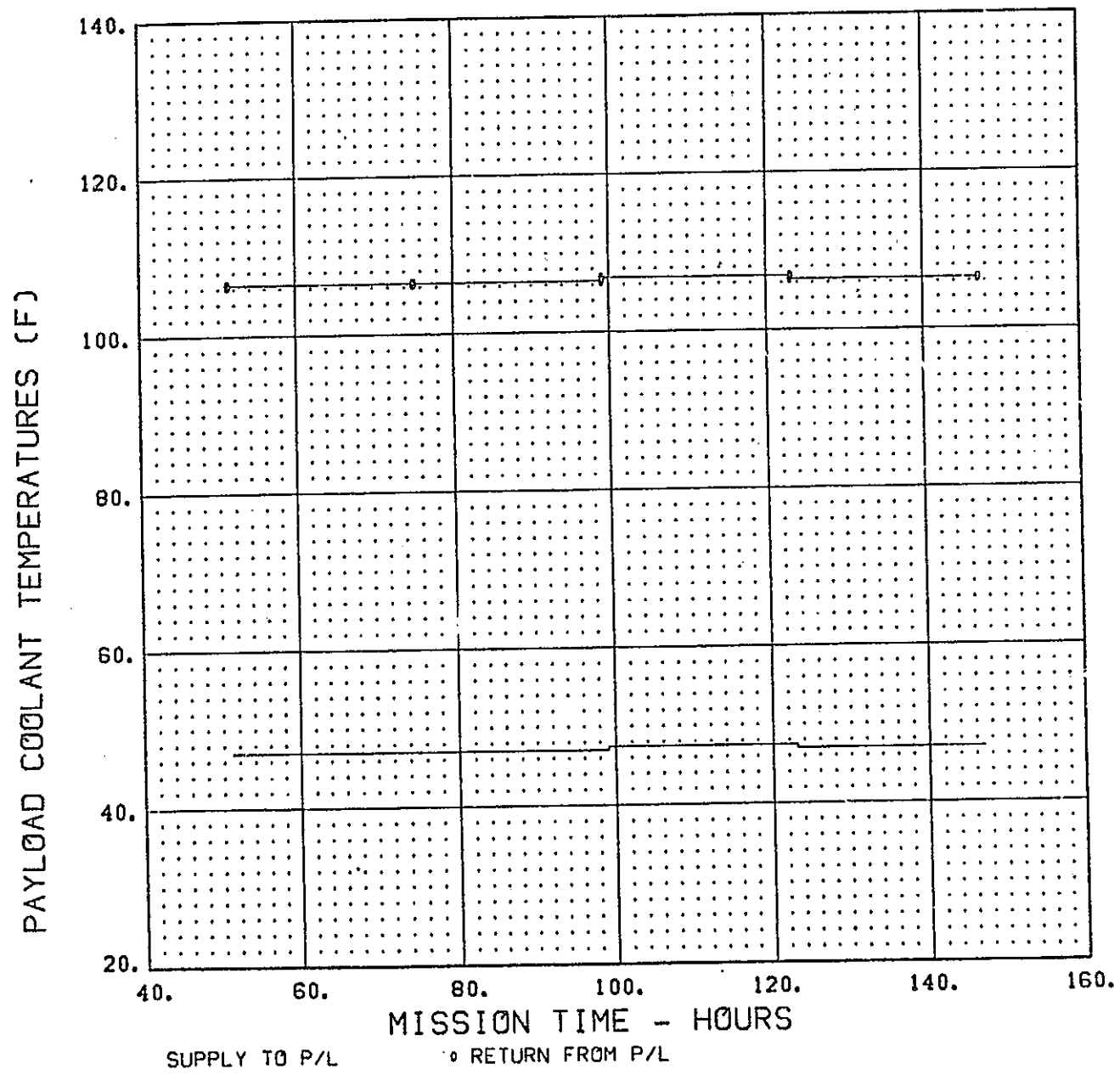
PAGE 4.


G189 CASE 'SHUTTLE SIMULATION *** W'TH APPLIANCES
8000.
6000.
4000.
2000.
-2000.
ORBITER CREW MODULE HEATLOADS (BTU/HR)
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
METABOLIC
0 EQUIPMENT+WALL
04-116068 03/19/75 UNIVAC 1108 SC-4020
PAGE 5.


G189 CASE 1SHUTTLE SIMULATION *** WITH APPLIANCES
PAYLOAD COOLANT TEMPERATURES (F)
140.
120.
100.
80.
60.
40.
20.
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
SUPPLY TO P/L
o RETURN FROM P/L
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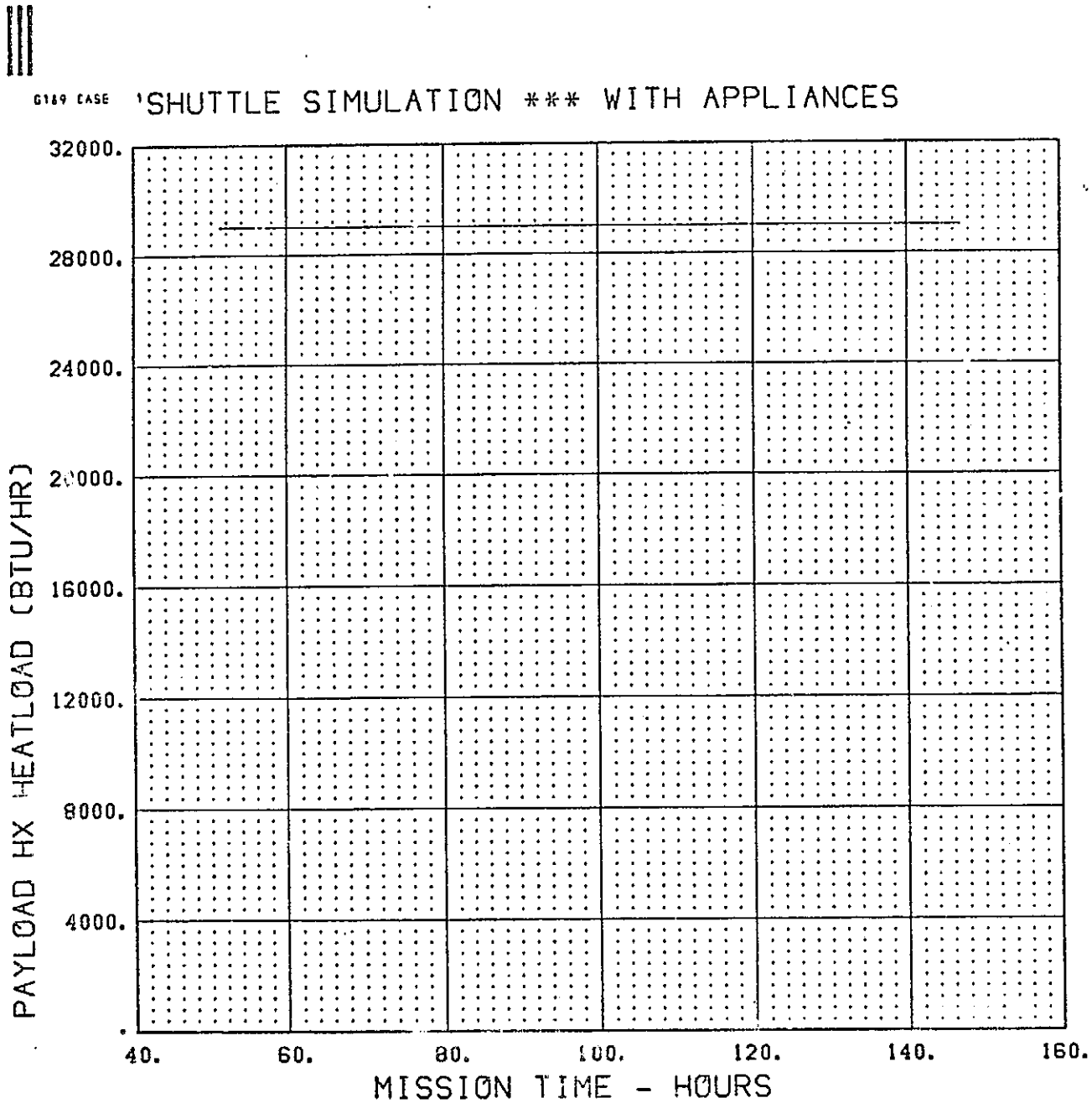
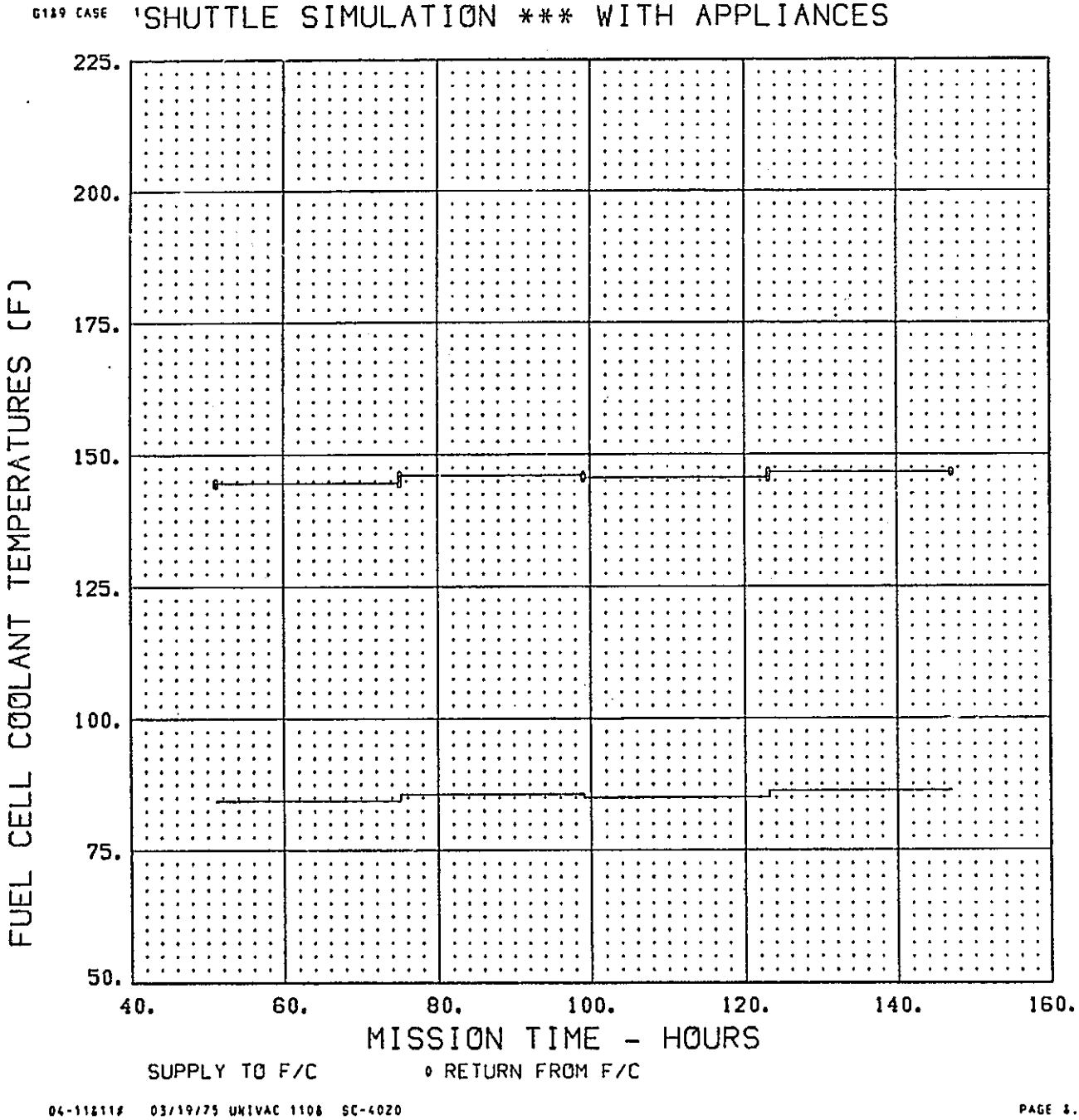
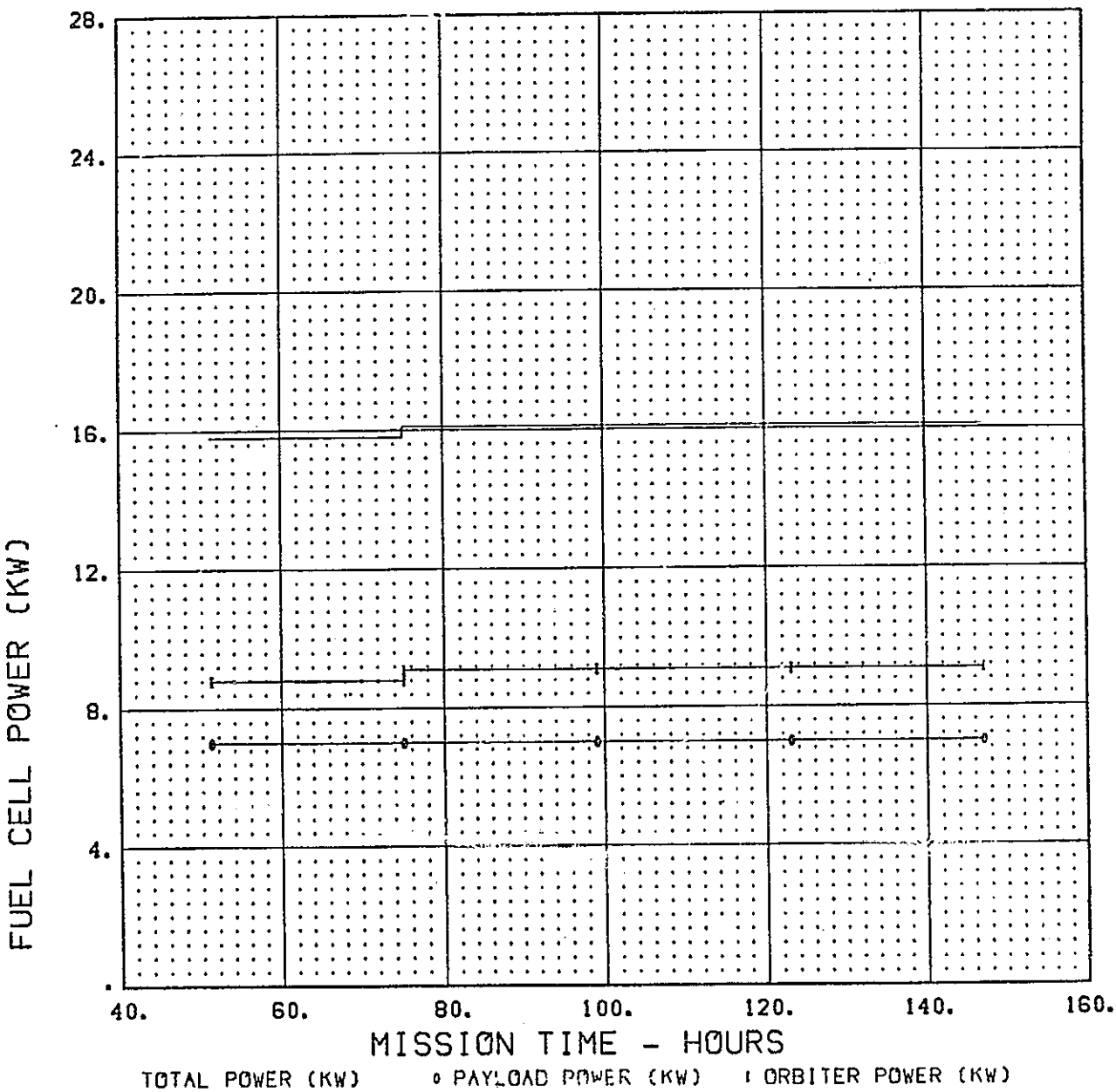
PAGE 6.


G189 CASE 1SHUTTLE SIMULATION *** WITH APPLIANCES
32000.
28000.
24000.
20000.
16000.
12000.
8000.
4000.
PAYLOAD HX HEATLOAD (BTU/HR)
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS


G189 CASE 'SHUTTLE SIMULATION *** WITH APPLIANCES
225.
200.
175.
150.
125.
100.
75.
50.
FUEL CELL COOLANT TEMPERATURES (F)
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS
SUPPLY TO F/C
0 RETURN FROM F/C
04-11811# 03/19/75 UNIVAC 1108 SC-4020
PAGE 8.

G189 CASE 1SHUTTLE SIMULATION *** WITH APPLIANCES



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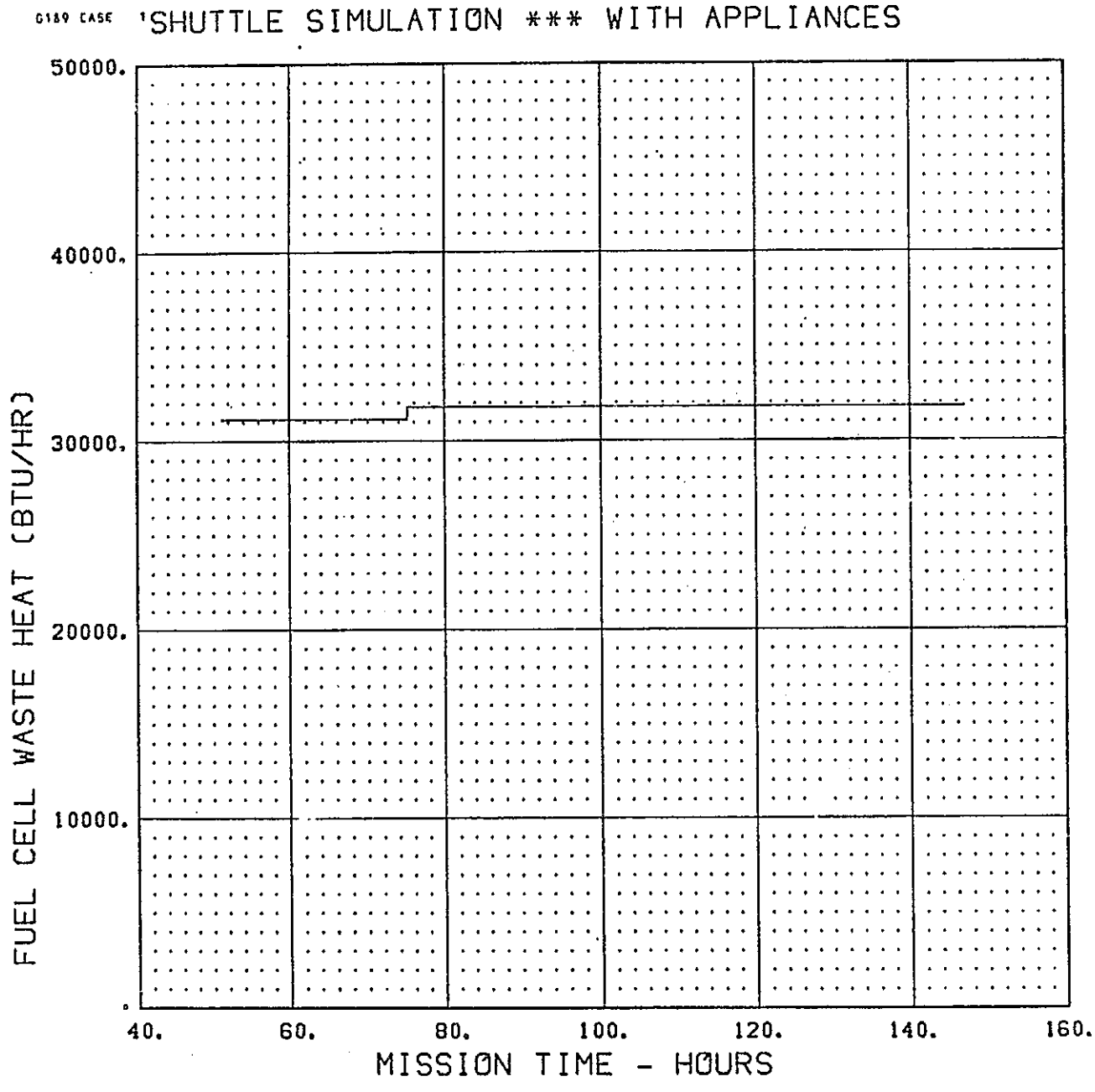
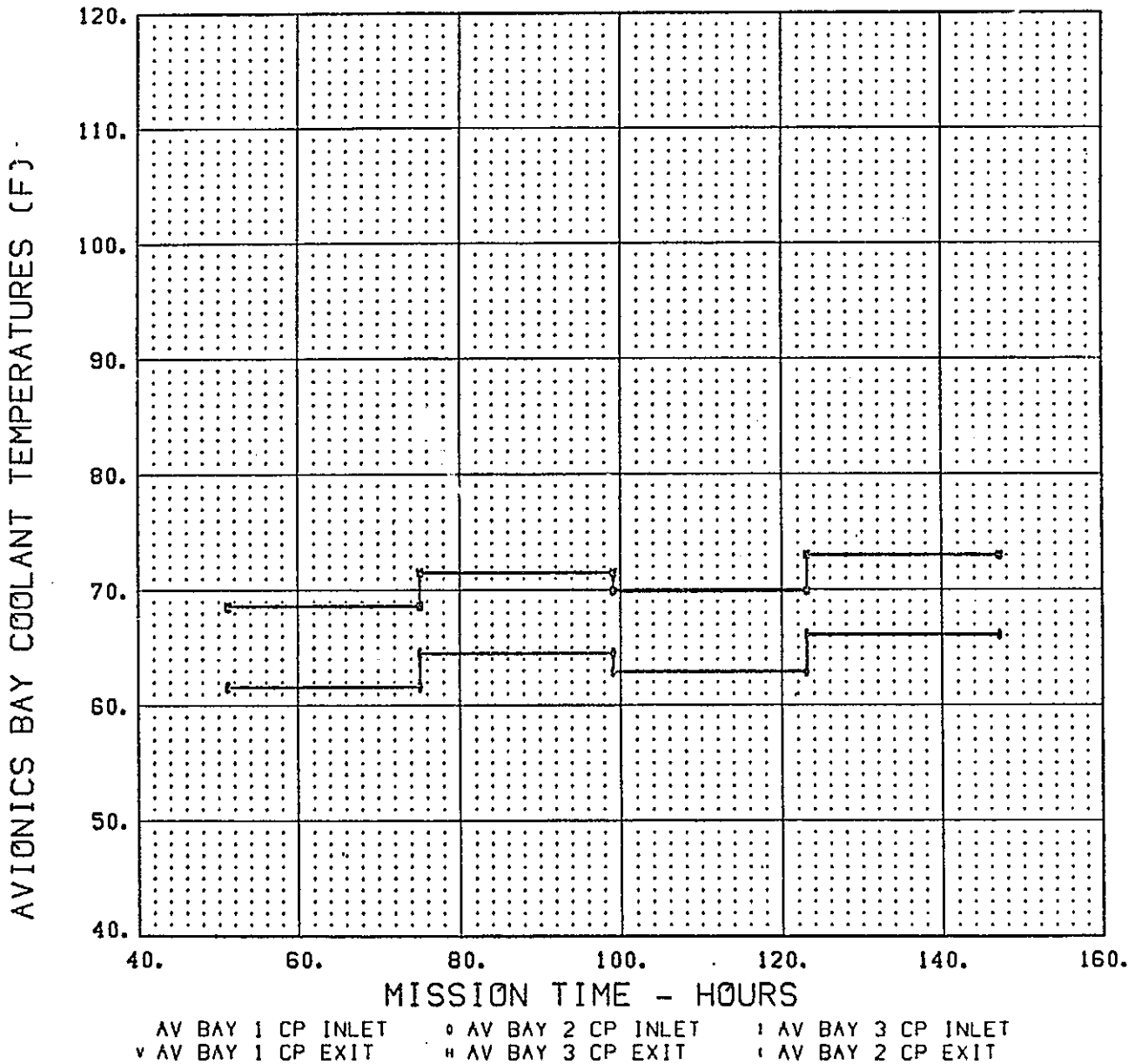

0180 CASE 1SHUTTLE SIMULATION *** WITH APPLIANCES
50000.
40000.
30000.
20000.
10000.
0
FUEL CELL WASTE HEAT (BTU/HR)
40.
60.
80.
100.
120.
140.
160.
MISSION TIME - HOURS

G189 CASE 'SHUTTLE SIMULATION *** WITH APPLIANCES



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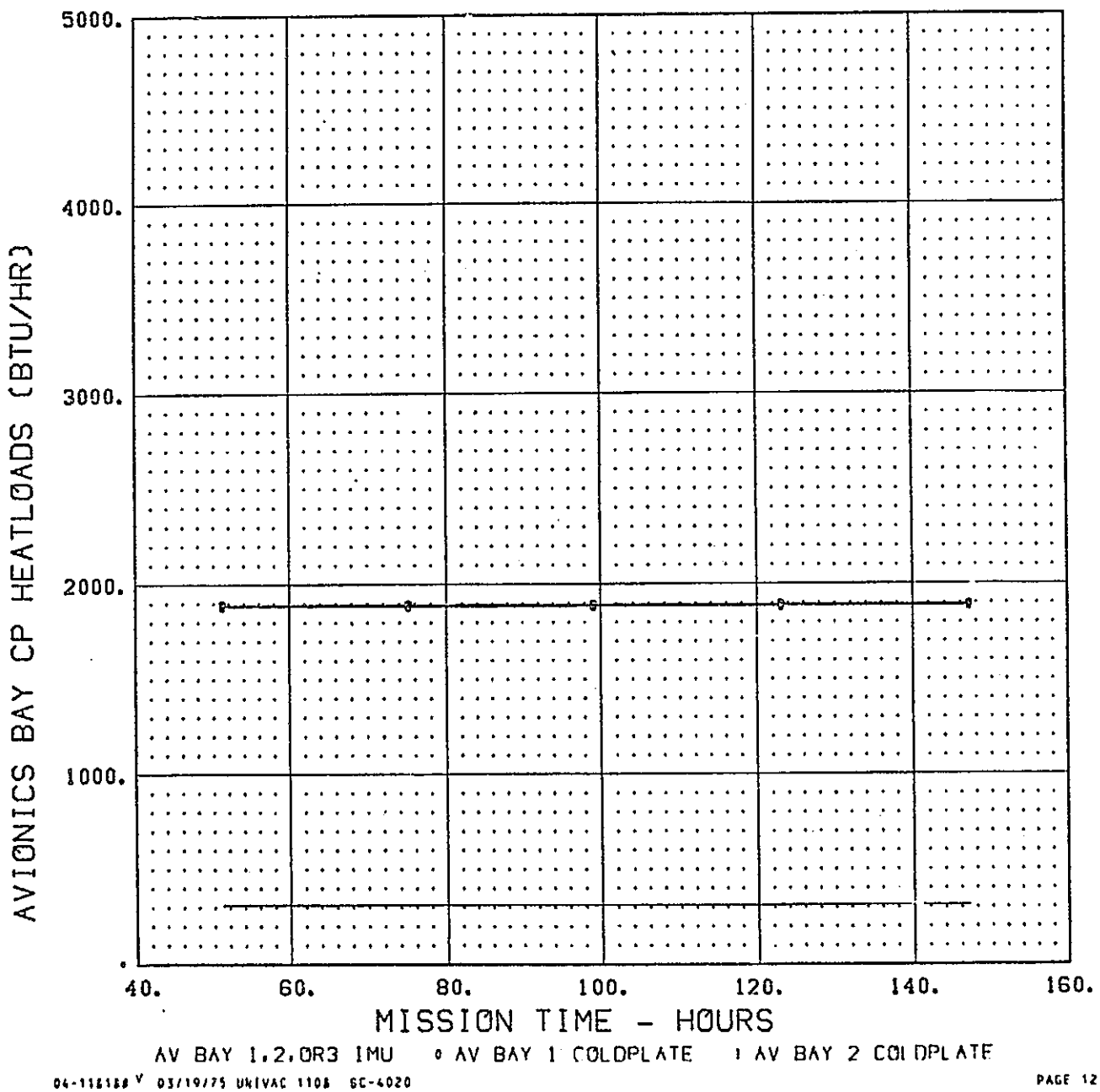
G189 CASE 1SHUTTLE SIMULATION *** WITH APPLIANCES



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APPENDIX F

INPUT G-189A DATA FOR MODULAR SPACE STATION/APPLIANCES MODEL

```
CHANGE CASE NO.    1      SPACE STATION APPLIANCES SIMULATION

THIS CASE WILL CONTINUE FROM RE-START RECORD NO.    1
$CASEI
DTIME    =      .90000000E+02,
KCHOUT   =               +1,
KPRNT    =               +6,
KPRUN    =               +0,
KPTINV   =              +96,                +2,                +3,                +4,
KPUNCH   =               +0,
KRUN     =               +2,
MAXCI    =              +10,
MAXLP    =              +10,
MAXSLP   =              +25,
MAXSSI   =              +25,
MINSSI   =              +20,
NPASPD   =               +4,
PGMIN    =      .00000000E+00,
PLMIN    =      .00000000E+00,
START    =      .28800000E+05,
TIMEMX   =      .64800000E+05,
TMAX     =      .25000000E+03,
TMIN     =     -.47000000E+03,
WTMAX    =      .10000000E+05,
IUTIS    =               +0,
IPONLY   =               +0,
TPLOTS   =      .00000000E+00,    .00000000E+00,    .00000000E+00,
  .00000000E+00,    .00000000E+00,
TPLOTE   =      .00000000E+00,    .00000000E+00,    .00000000E+00,
  .00000000E+00,    .00000000E+00,
KSTEDY   =               +0,
$END
$PROPI
CP       =      .10000000E+01,    .24800000E+00,    .00000000E+00,
  .00000000E+00,    .00000000E+00,    .00000000E+00,    .00000000E+00,
  .00000000E+00,    .00000000E+00,    .00000000E+00,    .00000000E+00,
  .00000000E+00,    .00000000E+00,    .00000000E+00,    .00000000E+00,
  .00000000E+00,    .00000000E+00,    .00000000E+00,    .00000000E+00,
  .00000000E+00,    .00000000E+00,    .00000000E+00,    .00000000E+00,
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  .00000000E+00,    .00000000E+00,    .00000000E+00,    .00000000E+00,
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  .00000000E+00,    .00000000E+00,    .00000000E+00,    .00000000E+00,
  .00000000E+00,    .00000000E+00,    .00000000E+00,    .00000000E+00,
  .00000000E+00,    .00000000E+00,    .00000000E+00,    .00000000E+00,
```

```
CHANGE CASE NO.    1      SPACE STATION APPLIANCES SIMULATION

   THIS CASE WILL CONTINUE FROM RE-START RECORD NO.    1
SCASE1
DTIME   =     .90000000E+02,
KCHOUT  =             +1,
KPRNT   =             +6,
KPRUN   =             +0,
KPTINV  =            +96,            +2,            +3,            +4,
KPUNCH  =             +0,
KRUN    =             +2,
MAXCI   =            +10,
MAXLP   =            +10,
MAXSLP  =            +25,
MAXSSI  =            +25,
MINSSI  =            +20,
NPASPD  =             +4,
PGMIN   =     .00000000E+00,
PLMIN   =     .00000000E+00,
START   =     .28800000E+05,
TIMEMX  =     .64800000E+05,
TMAX    =     .25000000E+03,
TMIN    =    -.47000000E+03,
WTMAX   =     .10000000E+05,
IUT15   =             +0,
IPONLY  =             +0,
TPLOTS  =     .00000000E+00,   .00000000E+00,   .00000000E+00,
  .00000000E+00,   .00000000E+00,
TPLOTE  =     .00000000E+00,   .00000000E+00,   .00000000E+00,
  .00000000E+00,   .00000000E+00,
KSTEDY  =             +0,
SEND
SPROP1
CP      =     .10000000E+01,   .24800000E+00,   .00000000E+00,
  .00000000E+00,   .00000000E+00,   .00000000E+00,   .00000000E+00,
  .00000000E+00,   .00000000E+00,   .00000000E+00,   .00000000E+00,
  .00000000E+00,   .00000000E+00,   .00000000E+00,   .00000000E+00,
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  .00000000E+00,   .00000000E+00,   .00000000E+00,   .00000000E+00,
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  .00000000E+00,   .00000000E+00,   .00000000E+00,   .00000000E+00,
  .00000000E+00,   .00000000E+00,   .00000000E+00,   .00000000E+00,
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  .00000000E+00,   .00000000E+00,   .00000000E+00,   .00000000E+00,
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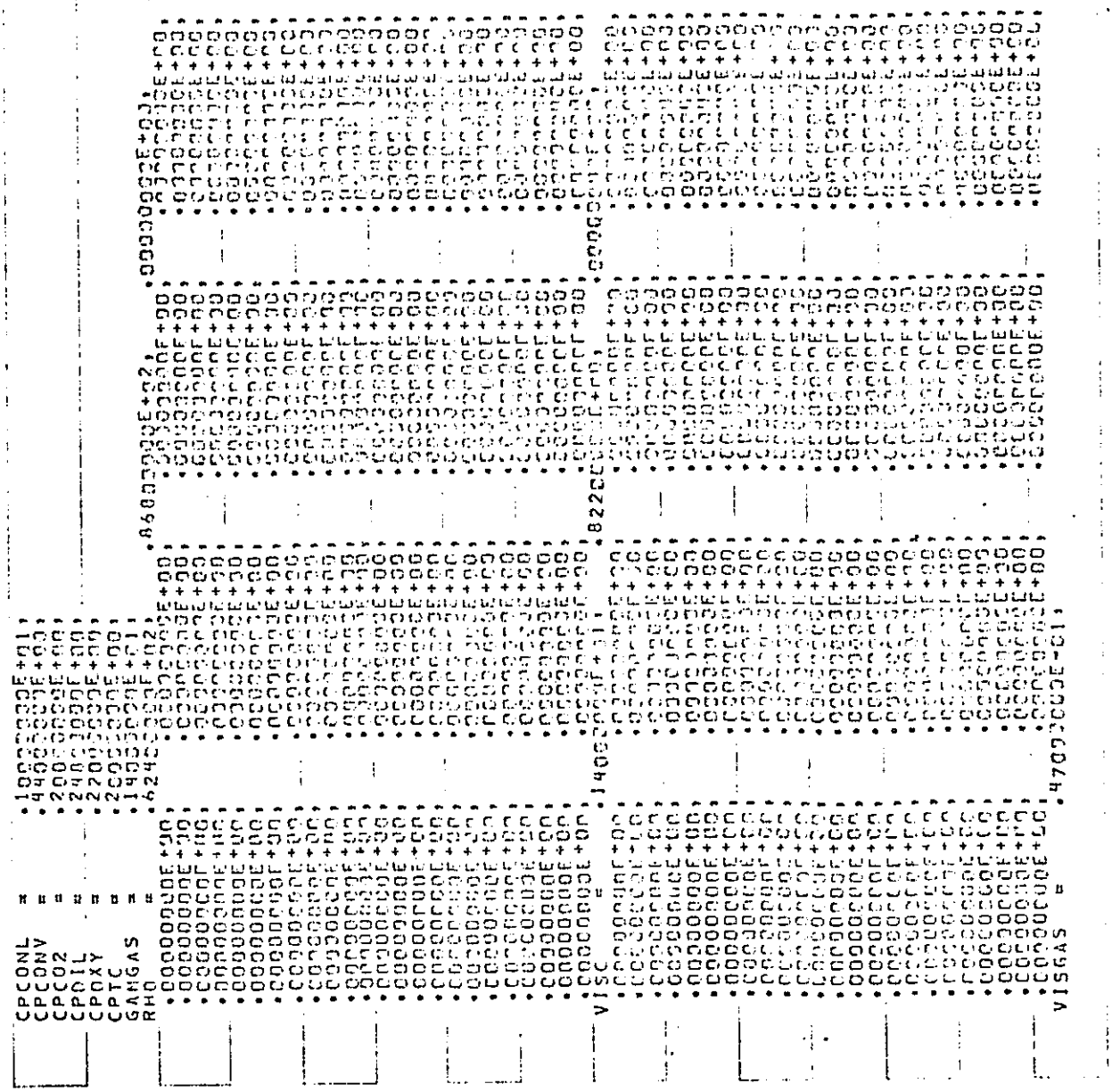
  .00000000E+00,   .00000000E+00,   .00000000E+00,   .00000000E+00,
  .00000000E+00,   .00000000E+00,   .00000000E+00,   .00000000E+00,
```

CPCONL
CPCONV
CPCO2
CPOIL
CPOXY
CPTC
GAMGAS
RHO
VISC
VISGAS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CPOIL
CPOXY
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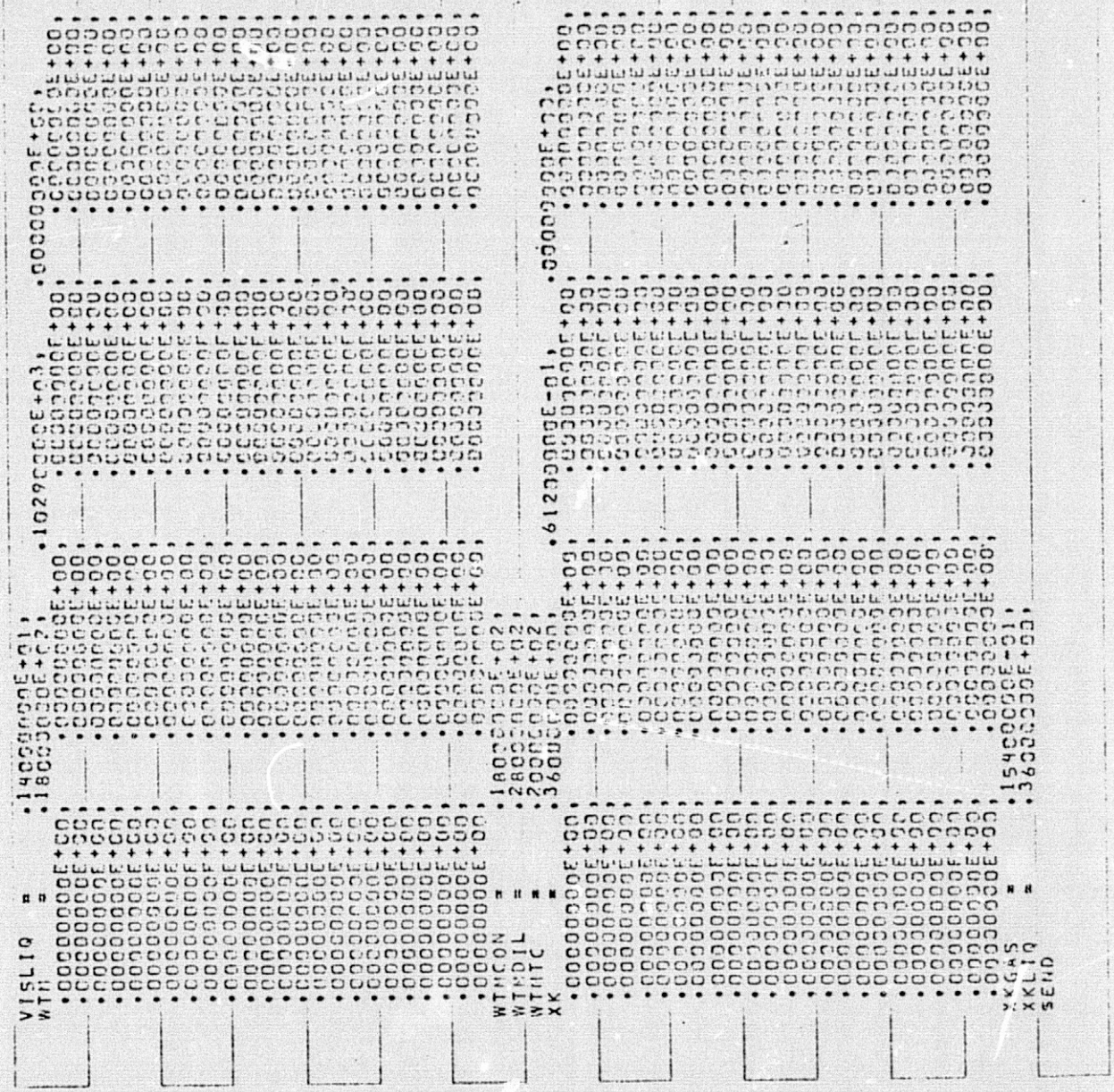
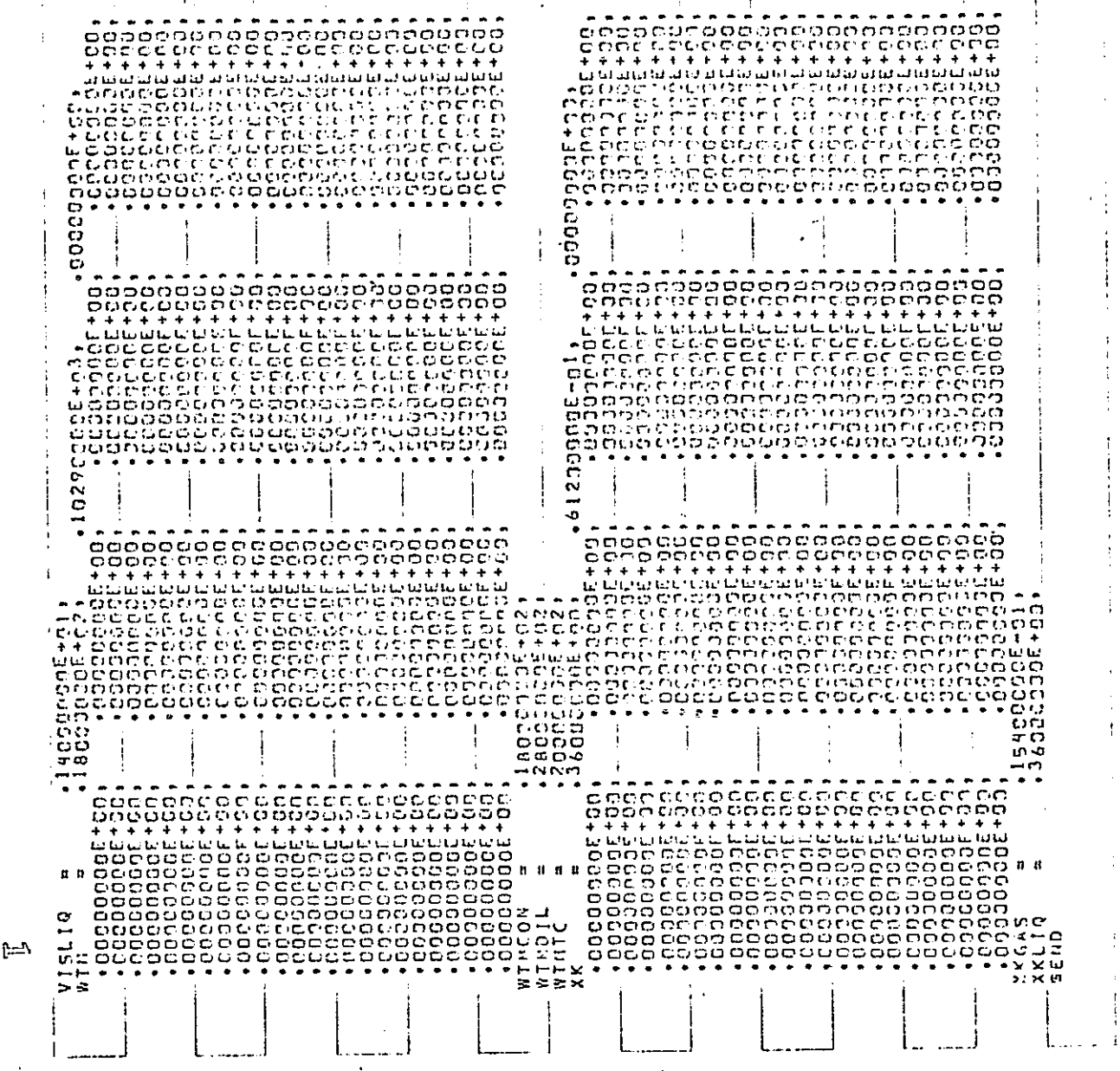
GANGAS
RHO





BASIC CASE DATA

SPACE STATION APPLIANCES SIMULATION

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301001   ID**   3    1   SHOWER STALL SIMULATION
302000   KBAS   3    0 67  4          19 2                      -22 0   1                    24
303000   NSTR   3    00

601001   ID**   6    1   CLOTHES WASHER/DRYER SIMULATION
602000   KBAS   6    0 79  5          30 0  1                   -26 2                        27
603000   NSTR   6    002301
605099   VARY   6   99 8.                  FIRST  TIME TO TURN ON (HRS)
605100   VARY   6  100 13.5                SECOND TIME TO TURN ON (HRS)
605110   VARY   6  110 12.                 SPIN DRY TIME (MIN)

1402000  KBAS   14   0 29 13      -18 2                         2                            19
1403000  NSTR   14   01                          SHOWER BLEED AIR FLOWMETER
1502000  KBAS   15   0  6          71 2                     20 2                             16
1503000  NSTR   15   02                          SHOWER INLET BLEED AIR MIXER

1602000  KBAS   16   0 23          15 2                                                      17
1603000  NSTR   16   00030                       SHOWER FAN
1605091  VARY   16  91 26.4               SHOWER FAN HEAT ADDED (WATTS)

1702000  KBAS   17   0 10          16 2                         2                            18
1703000  NSTR   17   000                         SHOWER AIR SPLITTER TO WATER SEPARATOR
1705065  VARY   17  65 0.1257             SHOWER AIR  SPLIT RATIO - BACK TO WATER SEPARATOR

1802000  KBAS   18   0 10          17 2                         2                            14
1803000  NSTR   18   000                         SHOWER AIR SPLITTER TO SYSTEM BLEED-OUT
1805065  VARY   18  65 0.1952             SHOWER AIR SPLIT RATIO, BLEED OUT

1902000  KBAS   19   0 49          18 2                                                      3
1903000  NSTR   19   01                          SHOWER AIR INLET HEATER
1905066  VARY   19  66 105.               SHOWER AIR HEATER TEMP CONTROL (F)

2002000  KBAS   20   0 49           0  1                    -24 2                            21
2003000  NSTR   20   00                          SHOWER WATER SEPARATOR

2102000  KBAS   21   0 49          20 0  1                                                   23
2103000  NSTR   21   00                          SHOWER OUTLET AIR FILTER

2202000  KBAS   22   0 49          86 0  1                                                   15
2203000  NSTR   22   01                          SHOWER WATER INLET TEMP CONTROL
2205066  VARY   22  66 105.              CONTROLLED SHOWER WATER INLET TEMP (F)

2302000  KBAS   23   0 22          21 0  1                                                   120
2303000  NSTR   23   00002                       SHOWER WATER CIRCULATION PUMP
2305085  VARY   23  85 17.3               SHOWER WATER PUMP HEAT ADDED (WATTS)

2402000  KBAS   24   0  6           3 2                     17 2                             20
2403000  NSTR   24   01                          SHOWER OUTLET AIR MIXER

2502000  KBAS   25   0 23          27 2                                                      65
2503000  NSTR   25   00030                       CLOTHES DRYER AIR FAN
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D2-118571-2

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2505091  VARY  25  91 20.3                CLOTHES DRYER AIR BLOWER HEAT (WATTS)

2602000  KBAS  26   0 49          73 2                                        35
2603000  NSTR  26   02                        CLOTHES DRYER AIR INLET HEATER
2605065  VARY  26  65                 CLOTHES DRYER AIR HEATER HEAT,BTU/HR (SET GPOLY1)

2702000  KBAS  27   0 49          -6 2                                        25
2703000  NSTR  27   00                        CLOTHES DRYER AIR FILTER

2802000  KBAS  28   0  7          87 0   1                33 0   1            29
2803000  NSTR  28   00                    CLOTHES WASHER WATER MIXER FROM SYSTEM

2902000  KBAS  29   0 49          28 0   1                                    30
2903000  NSTR  29   01                    CLOTHES WASHER WATER TEMP CONTROL
2905066  VARY  29  66 155.          CLOTHES WASHER WATER CONTROLLED INLET TEMP

3002000  KBAS  30   0 49          29 0   1                                     6
3003000  NSTR  30   00                      CLOTHES WASHER WATER FILTER

3102000  KBAS  31   0  7           6 0   1                -35 0   1           32
3103000  NSTR  31   00                    CLOTHES WASHER ACCUMULATOR WATER MIXER

3202000  KBAS  32   0 22          31 0   1                                    33
3203000  NSTR  32   00002                   CLOTHES WASHER WATER PUMP
3205085  VARY  32  85 10.            CLOTHES WASHER WATER PUMP HEAT ADDED (WATTS)

3302000  KBAS  33   0 10          32 0   1                  0   1            34
3303000  NSTR  33   000                   CLOTHES WASHER RECIRCULATION WATER SPLITTER
3305065  VARY  33  65                CLOTHES WASHER RECIRCULATION SPLITTER (SET GPOLY1)

3402000  KBAS  34   0 10          33 0   1                  0   1            28
3403000  NSTR  34   000                   CLOTHES WASHER WATER SPLITTER TO ACCUMULATOR
3405065  VARY  34  65                CLOTHES WASHER WATER SPLITTER TO ACUM.(SET GPOLY1)

3502000  KBAS  35   0 30         -34 0   1                                    31
3503000  NSTR  35   010110                  CLOTHES WASHER ACCUMULATOR TANK
3505001  VARY  35   1                CLOTHES WASHER WATER TANK OUTLET FLOW (SET GPOLY1)
3505051  VARY  35  51 100.          CLOTHES WASHER ACCUMULATOR TANK WALL TEMP
3505060  VARY  35  60 75.           AMBIENT STRUCTURE TEMP
3505061  VARY  35  61 4.0           CONDUCTOR, TANK-TO-AMBIENT
3505068  VARY  35  68 70.           TANK MAX WATER WEIGHT, FULL (LBS)
3505069  VARY  35  69 61.           TANK INITIAL WATER WEIGHT
3505070  VARY  35  70 100.          TANK INITIAL WATER TEMP
3505072  VARY  35  72 18.0          TANK PRESSURE, PSIA
3505092  VARY  35  92 2.2           TANK THERMAL CAPACITANCE
3505093  VARY  35  93 1.5           UA, TANK WALL-TO-FLUID
3505094  VARY  35  94 4.            MAX TEMP CHANGE FOR STABILITY

4002000  KBAS  40   0 49          63 2                                        41
4003000  NSTR  40   02                        DISH DRYER AIR INLET HEATER
4005065  VARY  40  65                 DISH DRYER AIR HEATER HEAT, BTU/HR (SET IN GPOLY1)

4102000  KBAS  41   0 30         -45 0   1                                    42
4103000  NSTR  41   010110                  DISH WASHER ACCUMULATOR TANK
4105001  VARY  41   1                DISH WASHER WATER TANK OUTLET FLOW (SET GPOLY1)
4105051  VARY  41  51 80.           DISH WASHER ACCUMULATOR TANK WALL TEMP (F)
4105060  VARY  41  60 75.           AMBIENT STRUCTURE TEMP (F)
4105061  VARY  41  61 1.5           CONDUCTOR, TANK-TO-AMBIENT
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4105068  VARY  41   68 20.                         TANK MAX WATER WEIGHT FULL (LBS)
4105069  VARY  41   69 19.                         TANK INITIAL WATER WEIGHT (LBS)
4105070  VARY  41   70 80.                         TANK INITIAL WATER TEMP (F)
4105072  VARY  41   72 18.                         TANK PRESSURE (PSIA)
4105092  VARY  41   92 0.8                         TANK THERMAL CAPACITANCE
4105093  VARY  41   93 0.6                         UA, TANK WALL-TO-FLUID
4105094  VARY  41   94 4.                          MAX TEMP CHANGE FOR STABILITY (F)

                                          49 0   1        -41 0   1                43
4202000  KBAS  42    0  7                          DISH WASHER ACCUMULATOR WATER MIXER
4203000  NSTR  42    00
                                                                                   44
4302000  KBAS  43    0 22                 42 0   1 DISH WASHER WATER PUMP
4303000  NSTR  43    00002
4305085  VARY  43   85 6.25                        DISH WASHER WATER PUMP HEAT ADDED (WATTS)
                                                            0   1                  45
4402000  KBAS  44    0 10                 43 0   1 DISH WASHER RECIRCULATION WATER SPLITTER
4403000  NSTR  44    000                           DISH WASHER RECIRCULATION SPLITTER (SET GPOLY1)
4405065  VARY  44   65
                                                            0   1                  46
4502000  KBAS  45    0 10                 44 0   1 DISH WASHER WATER SPLITTER TO ACCUMULATOR
4503000  NSTR  45    000                           DISH WASHER WATER SPLITTER TO ACUM. (SET GPOLY1)
4505065  VARY  45   65
                                                           44 0   1                47
4602000  KBAS  46    0  7                -87 0   1 DISH WASHER WATER MIXER FROM SYSTEM
4603000  NSTR  46    00
                                                                                   48
4702000  KBAS  47    0 49                 46 0   1 DISH WASHER WATER TEMP CONTROL
4703000  NSTR  47    01                            DISH WASHER WATER CONTROLLED INLET TEMP
4705066  VARY  47   66 155.
                                                                                   49
4802000  KBAS  48    0 49                 47 0   1 DISH WASHER WATER FILTER
4803000  NSTR  48    00

4901001  ID..  49    1  DISHES WASHER/DRYER SIMULATION
4902000  KBAS  49    0 70  5              48 0   1           -40 2                 50
4903000  NSTR  49    000011
4905099  VARY  49   99 8.5                         FIRST TIME TO TURN ON (HRS)
4905100  VARY  49  100 13.                         SECOND TIME TO TURN ON (HRS)
                                                                                   51
5002000  KBAS  50    0 49                -49 2     DISH DRYER AIR FILTER
5003000  NSTR  50    00
                                                                                   22
5102000  KBAS  51    0 23                 50 2     DISH DRYER AIR FAN
5103000  NSTR  51    00030                         DISH DRYER AIR BLOWER HEAT (WATTS)
5105091  VARY  51   91 33.9

5501001  ID..  55    1  DUMMY ARS AND CABIN H/X SUPPLY CONDITIONS
5502000  KBAS  55    0 49                          2
5505002  VARY  55    2 65.                         TEMP (F)
5505004  VARY  55    4 14.7                        PRESSURE (PSIA)
5505006  VARY  55    6 15.                         COND. VAPOR FLOW, LB/HR
5505007  VARY  55    7 0.                          ENTR. LIQUID FLOW
5505008  VARY  55    8 .2425                       N-C SPEC. HT
5505009  VARY  55    9 28.92                       N-C MOL. WT.
5505010  VARY  55   10 588.                        OXYGEN FLOW, LB/HR
5505011  VARY  55   11 1941.                       DILUENT FLOW, LB/HR
5505012  VARY  55   12 12.                         CO2 FLOW, LB/HR
5505013  VARY  55   13 0.                          TRACE CONTAM.
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5505014  VARY  55  14 0.                        SPL. FLOW 1

                                                                 2                  58
5602000  KBAS  56   0 10               55 2
5603000  NSTR  56   000                            ARS SUPPLY SPLITTER TO GALLEY, HYGIENE AREAS
5605001  VARY  56   1 1491.                     FLOW TO GALLEY FROM SYSTEM (LB/HR)
5605065  VARY  56  65 .5                        ARS AIR SPLIT RATIO

5802000  KBAS  58   0  3  3            56 2                                         60    60
5803000  NSTR  58   00                              CREWMEN IN GALLEY
5804016  KARY  58  16                           NO. OF MEN IN GALLEY (SET IN GPOLY1)
5804017  KARY  58  17     0000005               GALLEY CREWMEN CODE
5805071  VARY  58  71 20.                       GALLEY AIR FLOW, FPM
5805072  VARY  58  72 300.                      CREWMAN MAX HEAT STORAGE, BTU

6001001  ID**  60   1 GALLEY COMPARTMENT INITIAL CONDITIONS
6002000  KBAS  60   0  1 20            66 2                         -58 2               61
6003000  NSTR  60   0200000000
6005001  VARY  60   1 4432.                     FLOW, LB/HR
6005002  VARY  60   2 70.                       TEMP (F)
6005004  VARY  60   4 14.7                      PRESS (PSIA)
6005005  VARY  60   5 4415.                     N-C FLOW, LB/HR
6005006  VARY  60   6 27.                       COND. VAPOR FLOW, LB/HR
6005007  VARY  60   7 0.                        ENTR. LIQUID
6005008  VARY  60   8 .2425                     N-C SPEC. HT
6005009  VARY  60   9 28.92                     NC MOL. WT
6005010  VARY  60  10 1026.                     OXYGEN FLOW, LB/HR
6005011  VARY  60  11 3368.                     DILUENT FLOW, LB/HR
6005012  VARY  60  12 21.                       CO2 FLOW, LB/HR
6005013  VARY  60  13 0.                        TRACE. CONTAM.
6005014  VARY  60  14 0.                        SPL. FLOW 1
6005020  VARY  60  20 1278.                     SEC. FLOW
6005021  VARY  60  21 70.                       SEC. TEMP
6005023  VARY  60  23 14.7                      SEC. PRESS
6005024  VARY  60  24 1270.5                    SEC. N-C FLOW
6005025  VARY  60  25 7.5                       SEC. C-V FLOW
6005026  VARY  60  26 0.                        SEC. LIQUID FLOW
6005027  VARY  60  27 .2425                     SEC. N-C SPEC. HT
6005028  VARY  60  28 28.92                     SEC. N-C MOL. WT.
6005029  VARY  60  29 294.                      SEC. O2 FLOW
6005030  VARY  60  30 970.5                     SEC. DIL. FLOW
6005031  VARY  60  31 6.                        SEC. CO2 FLOW
6005032  VARY  60  32 0.                        SEC. TR. CONT.
6005033  VARY  60  33 0.                        SEC. SPL. FLOW 1
6005066  VARY  60  66                           GALLEY CABIN SENSIBLE HEAT LOAD, BTU/HR (GPOLY1)
6005076  VARY  60  76 1100.                     GALLEY CABIN WALL AREA,SQ FT
6005081  VARY  60  81 70.                       GALLEY AREA WALL TEMP (F)
6005082  VARY  60  82 1100.                     FURNISHINGS AREA (SQ FT)
6005083  VARY  60  83 1100.                     FURNISHINGS HEAT CONDUCTANCE
6005084  VARY  60  84 365.                      FURNISHINGS MASS CONDUCTANCE
6005087  VARY  60  87 70.                       GALLEY DESIGN TEMP., DEG F
6005088  VARY  60  88 15.                       GALLEY TEMP TOLERANCE, DEG F
6005090  VARY  60  90 14.7                      GALLEY DESIGN PRESSURE, PSIA
6005091  VARY  60  91 0.3                       GALLEY PRESSURE TOLERANCE, PSIA
6005092  VARY  60  92 3.2                       GALLEY O2 DESIGN PRESSURE, PSIA
6005093  VARY  60  93 0.2                       GALLEY O2 PRESSURE TOLERANCE, PSIA
6005096  VARY  60  96 50.                       GALLEY DESIGN DEW POINT,  DEG F
6005097  VARY  60  97 15.                       GALLEY DEW POINT TOLERANCE, DEG F
6005099  VARY  60  99 7.6                       GALLEY MAX CO2 PRESSURE,  MM HG
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6005101  VARY  60 101 250.                      GALLEY MAX TRACE CONTAM., PPM
6005122  VARY  60 122                           GALLEY AIR LEAKAGE, LB/HR
6005139  VARY  60 139 3750.                     GALLEY CABIN FREE VOLUME (CU FT)

6102000  KBAS  61   0 10           60 2               2                        62
6103000  NSTR  61   001                         GALLEY AIR SPLITTER TO FREEZER

6201001  ID**  62   1 FREEZER - WITH SELF CONTAINED COOLING UNIT
6202000  KBAS  62   0 71  7        61 2                                        63   60
6203000  NSTR  62   0101111
6204017  KARY  62  17          0        FREEZER INITIAL CHILLER OPERATION
6205051  VARY  62  51 -10.              FOOD OUTER SURFACE TEMP (F)
6205055  VARY  62  55 45.               UA, AMBIENT GAS-TO-INSULATION SURFACE
6205058  VARY  62  58 20.               RADIATION CONDUCTOR, WALL-TO-FREEZER SURFACE
6205061  VARY  62  61 .08               CONDUCTOR, STRUCTURE-TO-FOOD OUTER SURFACE
6205064  VARY  62  64 .7                THERMAL CONDUCTOR THRU INSULATION
6205066  VARY  62  66 -10.              CONTROL TEMP (F)
6205068  VARY  62  68 2.6               TOTAL INTERNAL VOLUME (CU FT)
6205069  VARY  62  69 2.09              PACKAGED FOOD VOLUME (CU FT)
6205072  VARY  62  72 26.35             DRY FOOD WEIGHT (LBS)
6205073  VARY  62  73 .2                FRACTION OF FOOD ASSIGNED TO OUTER SURFACE
6205074  VARY  62  74 10.               FREEZER INNER SHELL THERMAL MASS
6205075  VARY  62  75 -10.              FOOD INNER NODE TEMP (F)
6205078  VARY  62  78 6.3               THERMAL CONDUCTOR, UNFROZEN FOOD INNER-TO-OUTER
6205082  VARY  62  82 18.               CONDUCTOR, COOLING COILS-TO-FOOD SURFACE
6205083  VARY  62  83 -15.              LOW  TEMP LIMIT TO TURN CHILLER OFF (F)
6205084  VARY  62  84 -5.               HIGH TEMP LIMIT TO TURN CHILLER ON  (F)
6205100  VARY  62 100 1.07              CHILLER UNIT COP
6205102  VARY  62 102 -28.              EVAPORATOR DESIGN TEMP (F)
6205103  VARY  62 103 1.                COOLING COILS THERMAL MASS DRY
6205104  VARY  62 104 -10.              COOLING COILS TEMP (F)
6205120  VARY  62 120 .08               CONDUCTOR,COOLING COILS-TO-CHILLER UNIT (OFF)
6205121  VARY  62 121 70.               CHILLER UNIT TEMP (F) ATTACHED TO COOLING COILS
6205125  VARY  62 125 8.25              FIRST  DOOR OPENING TIME (HRS)
6205126  VARY  62 126 11.5              SECOND DOOR OPENING TIME (HRS)
6205127  VARY  62 127 11.63             THIRD  DOOR OPENING TIME (HRS)
6205128  VARY  62 128 11.75             FOURTH DOOR OPENING TIME (HRS)
6205129  VARY  62 129 15.75             FIFTH  DOOR OPENING TIME (HRS)
6205130  VARY  62 130 15.88             SIXTH  DOOR OPENING TIME (HRS)

6302000  KBAS  63   0 10          -61 2               2                        64
6303000  NSTR  63   001                         GALLEY AIR SPLITTER TO DISHWASHER
6305001  VARY  63   1                   DISH DRYER AIR INLET FLOW (SET IN GPOLY1)

6402000  KBAS  64   0 49          -63 2                                        68
6403000  NSTR  64   02                          GALLEY FAN AND H/X
6405065  VARY  64  65                   CABIN FAN, H/X HEAT LOAD (BTU/HR)- SET IN GPOLY1

6502000  KBAS  65   0  6           62 2           -51 2                        66
6503000  NSTR  65   01                          GALLEY AIR MIXER

6602000  KBAS  66   0  6           65 2           -64 2                        80
6603000  NSTR  66   01                          GALLEY AIR MIXER - INITIAL CONDITIONS
6605002  VARY  66   2 68.               TEMP (F)
6605004  VARY  66   4 14.8              PRESSURE (PSIA)
6605006  VARY  66   6 17.               COND. VAPOR (LB/HR)
6605010  VARY  66  10 1026.             OXYGEN FLOW (LB/HR)
6605011  VARY  66  11 3368.             DILUENT FLOW (LB/HR)
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6605012  VARY  66  12 21.                    CO2 FLOW (LB/HR)
6802000  KBAS  68   0  3  3        -56 2                              70   70
6803000  NSTR  68  00                        CREWMEN IN HYGIENE AREA
6804016  KARY  68  16                        NO. OF MEN IN HYGIENE AREA (SET IN GPOLY1)
6804017  KARY  68  17      0000005           CREWMEN CODE
6805071  VARY  68  71 20.                    HYGIENE AREA AIR FLOW, FPM
6805072  VARY  68  72 300.                   CREWMAN MAX HEAT STORAGE, BTU
7001001  ID**  70   1 HYGIENE COMPARTMENT INITIAL CONDITIONS
7002000  KBAS  70   0  1 20         77 2                -68 2                78
7003000  NSTR  70  0200000000
7005001  VARY  70   1 4382.                 FLOW, LB/HR
7005002  VARY  70   2 70.                   TEMP (F)
7005004  VARY  70   4 14.7                  PRESSURE (PSIA)
7005005  VARY  70   5 4365.                 N-C FLOW, LB/HR
7005006  VARY  70   6 17.                   COND. VAPOR FLOW, LB/HR
7005007  VARY  70   7 0.                    ENTR. LIQUID
7005008  VARY  70   8 .2425                 N-C SPEC. HT
7005009  VARY  70   9 28.92                 N-C MOL. WT.
7005010  VARY  70  10 1014.                 OXYGEN FLOW, LB/HR
7005011  VARY  70  11 3330.                 DILUENT FLOW, LB/HR
7005012  VARY  70  12 21.                   CO2 FLOW, LB/HR
7005013  VARY  70  13 0.                    TRACE CONTAM.
7005014  VARY  70  14 0.                    SPL. FLOW 1
7005020  VARY  70  20 1278.                 SEC. FLOW
7005021  VARY  70  21 70.                   SEC. TEMP
7005023  VARY  70  23 14.7                  SEC. PRESS
7005024  VARY  70  24 1270.5                SEC. N-C FLOW
7005025  VARY  70  25 7.5                   SEC. C-V FLOW
7005026  VARY  70  26 0.                    SEC. LIQUID FLOW
7005027  VARY  70  27 .2425                 SEC. N-C SPEC. HT.
7005028  VARY  70  28 28.92                 SEC. N-C MOL. WT.
7005029  VARY  70  29 294.                  SEC. O2 FLOW
7005030  VARY  70  30 970.5                 SEC. DIL. FLOW
7005031  VARY  70  31 6.                    SEC. CO2 FLOW
7005032  VARY  70  32 0.                    SEC. TR. CONT.
7005033  VARY  70  33 0.                    SEC. SPL. FLOW 1
7005066  VARY  70  66                       SENSIBLE HEAT LOAD, BTU/HR (SET IN GPOLY1)
7005076  VARY  70  76 1100.                 WALL AREA, SQ FT
7005081  VARY  70  81 70.                   WALL TEMP (F)
7005082  VARY  70  82 1100.                 FURNISHINGS AREA (SQ FT)
7005083  VARY  70  83 1100.                 FURNISHINGS HEAT CONDUCTANCE
7005084  VARY  70  84 365.                  FURNISHINGS MASS CONDUCTANCE
7005087  VARY  70  87 70.                   DESIGN TEMP, DEG F
7005088  VARY  70  88 15.                   TEMP TOLERANCE, DEG F
7005090  VARY  70  90 14.7                  DESIGN PRESSURE, PSIA
7005091  VARY  70  91 0.3                   PRESSURE TOLERANCE, PSIA
7005092  VARY  70  92 3.2                   O2 DESIGN PRESSURE, PSIA
7005093  VARY  70  93 0.2                   O2 PRESSURE TOLERANCE, PSIA
7005096  VARY  70  96 50.                   DESIGN DEW POINT, DEG F
7005097  VARY  70  97 15.                   DEW POINT TOLERANCE, DEG F
7005099  VARY  70  99 7.6                   MAX CO2 PRESSURE, MM HG
7005101  VARY  70 101 250.                  MAX TRACE CONTAM, PPM
7005122  VARY  70 122                       AIR LEAKAGE, LB/HR
7005139  VARY  70 139 3750.                 FREE VOLUME (CU FT)
7102000  KBAS  71   0 10          78 2                2                72
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7103000  NSTR  71    001                        HYGIENE AREA AIR SPLITTER TO SHOWER
7105001  VARY  71    1                      AIR FLOW TO SHOWER - SET IN GPOLY1

7202000  KBAS  72    0 10          -71 2                2                        73
7203000  NSTR  72    001                        HYGIENE AREA AIR SPLITTER TO DRYJOHN
7205001  VARY  72    1                      AIR FLOW TO DRYJOHN -SET IN GPOLY1

7302000  KBAS  73    0 10          -72 2                2                        74
7303000  NSTR  73    001                        HYGIENE AREA AIR SPLITTER TO CLOTHESWASHER
7305001  VARY  73    1                      AIR FLOW TO CLOTHES DRYER - SET IN GPOLY1

7402000  KBAS  74    0 49          -73 2                                         40
7403000  NSTR  74    02                         HYGIENE AREA FAN AND H/X
7405065  VARY  74    65                     CABIN FAN; H/X HEAT LOAD (BTU/HR)- SET IN GPOLY1

7502000  KBAS  75    0  6           80 2            -126 2                       76
7503000  NSTR  75    00                         HYGIENE AREA AIR MIXER

7602000  KBAS  76    0  6           75 2             -25 2                       77
7603000  NSTR  76    00                         HYGIENE AREA AIR MIXER

7702000  KBAS  77    0  6           76 2             -74 2                       84
7703000  NSTR  77    00                         HYGIENE AREA AIR MIXER - INITIAL CONDITIONS
7705002  VARY  77    2 68.                  TEMP (F)
7705004  VARY  77    4 14.8                 PRESSURE (PSIA)
7705006  VARY  77    6 38.                  COND. VAPOR (LB/HR)
7705010  VARY  77   10 1014.                OXYGEN FLOW (LB/HR)
7705011  VARY  77   11 3330.                DILUENT (LB/HR)
7705012  VARY  77   12 21.                  CO2 FLOW (LB/HR)

7802000  KBAS  78    0 10           70 2                2                        79
7803000  NSTR  78    002                        AIR SPLITTER TO WIPE WETTING UNIT
7805020  VARY  78   20                      AIR FLOW TO WIPE WETTER (SET IN GPOLY1)

7901001  ID**  79    1  WIPE WETTING UNIT
7902000  KBAS  79    0 49          -78 2                 83 0    1               71
7903000  NSTR  79    00

8002000  KBAS  80    0  6           14 2             -79 2                       75
8003000  NSTR  80    00                         AIR MIXER - SHOWER, WIPE WETTING UNIT

8302000  KBAS  83    0 10           85 0    1             0    1                 86
8303000  NSTR  83    002                        WATER SPLITTER TO WIPE WETTING UNIT
8305020  VARY  83   20                      WATER FLOW TO WIPE WETTER (SET IN GPOLY1)

8402000  KBAS  84    0  7           23 0    1          79 0    1                 88
8403000  NSTR  84    00                         WATER MIXER - SHOWER, WIPE WETTING UNIT

8502000  KBAS  85    0 30          -90 0    1                                    83
8503000  NSTR  85    000110                     WASH/RINSE WATER STORAGE TANK
8505001  VARY  85    1                      WASH WATER USAGE RATE (SET IN GPOLY1)
8505051  VARY  85   51 150.                 WALL TEMP, DEG F
8505054  VARY  85   54 75.                  AMBIENT GAS TEMP, DEG F
8505055  VARY  85   55 20.                  CONVECTION CONDUCTOR TO AMBIENT
8505057  VARY  85   57 75.                  AMBIENT WALL TEMP, DEG F
8505058  VARY  85   58 10.                  RADIATION CONDUCTOR, WALL-TO-AMBIENT
8505060  VARY  85   60 75.                  EXTERNAL STRUCTURE TEMP, DEG F
8505061  VARY  85   61 4.0                  CONDUCTOR, STRUCTURE-TO-AMBIENT
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8505063  VARY  85   63 75.              INSULATION SURFACE TEMP (F)
8505064  VARY  85   64 3.0              TANK INSULATION CONDUCTOR
8505068  VARY  85   68 500.             MAX FLUID WEIGHT, LBS
8505069  VARY  85   69 300.             INITIAL FLUID WEIGHT, LBS
8505070  VARY  85   70 160.             INITIAL FLUID TEMP, DEG F
8505072  VARY  85   72 45.              FLUID PRESSURE, PSIA
8505082  VARY  85   82 300.             INITIAL FLUID WEIGHT, LBS
8505092  VARY  85   92 9.9              SHELL THERMAL CAPACITOR
8505093  VARY  85   93 25.              CONDUCTOR, FLUID-TO-WALL
8505094  VARY  85   94 4.               STABILITY TEMP INCREMENT
8505095  VARY  85   95                  WASH WATER HEATER HEAT, BTU/HR (SET IN GPOLY1)

8602000  KBAS  86    0 10      83 0  1                  0  1      87
                                          WATER SPLITTER TO SHOWER
8603000  NSTR  86    001
8605001  VARY  86    1                  SHOWER WATER FLOW ,LB/HR  (SET IN GPOLY1)

8702000  KBAS  87    0 10     -86 0  1                  0  1      56
                                          WATER SPLITTER TO CLOTHES/DISH WASHERS
8703000  NSTR  87    001
8705001  VARY  87    1                  CLOTHES WASHER WATER FLOW, LB/HR (SET IN GPOLY1)

8802000  KBAS  88    0  7      84 0  1         -34 0  1               89
                                          WMS WATER MIXER
8803000  NSTR  88    00

8902000  KBAS  89    0  7      88 0  1         -45 0  1               91
                                          WMS WATER MIXER
8903000  NSTR  89    00

9001001  ID**  90    1 REVERSE OSMOSIS UNIT - INITIAL CONDITIONS
9002000  KBAS  90    0 69      98 0  1                  0  1      92
9005020  VARY  90   20 10.              INITIAL FLOW FROM R/O MODULE (LB/HR)
9005021  VARY  90   21 85.              TEMP (F)
9005023  VARY  90   23 45.              PRODUCT PRESSURE (PSIA)

9102000  KBAS  91    0 22      89 0  1                            98
                                          WASH WATER PUMP TO R/O UNIT
9103000  NSTR  91    00002
9105035  VARY  91   85 20.              WASH WATER PUMP HEAT ADDED (WATTS)

9202000  KBAS  92    0  7     125 0  1         -90 0  1               93
                                          WMS WATER MIXER
9203000  NSTR  92    00

9301001  ID**  93    1 VCD UNIT SIMPLIFIED MODEL
9302000  KBAS  93    0 30      92 0  1                            94
9303000  NSTR  93    011010
9305001  VARY  93    1 2.45             INITIAL OUTLET FLOW, LB/HR
9305068  VARY  93   68 40.              MAX FLUID WEIGHT, LBS
9305069  VARY  93   69 6.               INITIAL FLUID WEIGHT, LBS
9305070  VARY  93   70 85.              FLUID TEMP, DEG F
9305072  VARY  93   72 45.              FLUID PRESSURE, PSIA
9305082  VARY  93   82 6.               INITIAL FLUID WEIGHT, LBS

9402000  KBAS  94    0 30      93 0  1                            95
                                          POTABLE WATER STORAGE TANK
9403000  NSTR  94    011010
9405068  VARY  94   68 200.             MAX FLUID WEIGHT, LBS
9405069  VARY  94   69 100.             INITIAL FLUID WEIGHT, LBS
9405070  VARY  94   70 160.             FLUID TEMP, DEG F
9405072  VARY  94   72 45.              FLUID PRESSURE, PSIA
9405082  VARY  94   82 100.             INITIAL FLUID WEIGHT, LBS

9501001  ID**  95    1 FOOD TRAYS (6)
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9502000  KBAS  95    0 66                                                     97
9503000  NSTR  95    000
9505066  VARY  95   66 18.                NUMBER OF TRAY CAVITIES HEATED
9505104  VARY  95  104 -1.                TRAY ON/OFF SWITCH - SET IN GPOLYI

9601001  ID**  96    1 DUMMY REFRIGERATOR COOLANT INLET CONDITIONS
9602000  KBAS  96    0 49                 0   2
9605001  VARY  96    1 75.                FREON INLET FLOW (LB/HR) TO 3 REFRIGERATORS
9605002  VARY  96    2 37.                TEMPERATURE, DEG F
9605003  VARY  96    3 240.               PRESSURE, PSIA
9605004  VARY  96    4 240.               PRESSURE, PSIA

9701001  ID**  97    1  REFRIGERATOR - WITH EXTERNAL RADIATOR COOLING CIRCUIT
9702000  KBAS  97    0 71           96 0   2                                  85    60
9703000  NSTR  97    000000
9705051  VARY  97   51 40.                FOOD OUTER SURFACE TEMP (F)
9705055  VARY  97   55 45.                UA, AMBIENT GAS TO INSULATION SURFACE
9705058  VARY  97   58 20.                RADIATION CONDUCTOR, WALL-TO-REFRIGERATOR SURFACE
9705061  VARY  97   61 .08                CONDUCTOR, STRUCTURE-TO-FOOD OUTER SURFACE
9705064  VARY  97   64 .7                 THERMAL CONDUCTOR THRU INSULATION
9705068  VARY  97   68 2.6                TOTAL INTERNAL VOLUME (CU FT)
9705069  VARY  97   69 2.09               PACKAGED FOOD VOLUME (CU FT)
9705071  VARY  97   71 24.                NUMBER OF DOOR OPENINGS PER DAY
9705072  VARY  97   72 26.35              DRY FOOD WEIGHT (LBS)
9705073  VARY  97   73 .2                 FRACTION OF FOOD ASSIGNED TO OUTER SURFACE
9705074  VARY  97   74 10.                REFRIGERATOR INNER SHELL THERMAL MASS
9705075  VARY  97   75 40.                FOOD INNER NODE TEMP (F)
9705078  VARY  97   78 6.3                THERMAL CONDUCTOR, INNER FOOD-TO-OUTER
9705082  VARY  97   82 18.                CONDUCTOR, COOLING COILS-TO-FOOD SURFACE
9705103  VARY  97  103 1.                 COOLING COILS THERMAL MASS DRY
9705104  VARY  97  104 37.                COOLING COILS TEMP (F)
9705114  VARY  97  114 24700.             NEXT TIME (SEC) TO OPEN DOOR
9705119  VARY  97  119 .2                 DRY FOOD SPECIFIC HEAT

9802000  KBAS  98    0 30           91 0   1                                  90
9803000  NSTR  98    012010                      R/O MODULE HOLDING TANK - INITIAL CONDITIONS
9805001  VARY  98    1 10.2               R/O HOLDING TANK OUTLET FLOWRATE (LB/HR)
9805051  VARY  98   51 100.               WALL TEMP (F)
9805060  VARY  98   60 75.                STRUCTURE CONNECTION TEMP (F)
9805061  VARY  98   61 10.                CONDUCTANCE TO STRUCTURE
9805068  VARY  98   68 340.               MAX FLUID WEIGHT, LBS
9805069  VARY  98   69 50.                FLUID WEIGHT, LBS
9805070  VARY  98   70 100.               FLUID TEMP (F)
9805072  VARY  98   72 940.               FLUID PRESSURE, PSIA
9805093  VARY  98   93 20.                FLUID CONDUCTANCE TO WALL
9805094  VARY  98   94 4.                 STABILITY TEMP INCREMENT

12002000 KBAS 120    0 10           72 2                   2                 121
12003000 NSTR 120    000                         AIR INLET SPLITTER TO DRYJOHN
12005065 VARY 120   65                     AIR SPLITTER RATIO TO DRYJOHN (SET IN GPOLY1)

12101001 ID** 121    1  DRYJOHN COMMODE/URINAL SIMULATION
12102000 KBAS 121    0 68 17       120 2               120 2                 122
12103000 NSTR 121    00
12105066 VARY 121   66 3.                  DRYJOHN USAGE PHASE (CHANGE IN GPOLY1)

12202000 KBAS 122    0 10          121 2                   2                 123
12203000 NSTR 122    000                         DRYJOHN AIR SPLITTER TO VACUUM
12205065 VARY 122   65                    SPLIT RATIO TO VACUUM (SET IN GPOLY1)
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ORIGINAL PAGE IS OF POOR QUALITY

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12302000  KBAS 123   0  6            122 2                        121 2               125
12303000  NSTR 123   00                         DRYJOHN AIR MIXER
12502000  KBAS 125   0 49                  0  1                  -123 2               126
12503000  NSTR 125   00                         DRYJOHN WATER SEPARATOR
12602000  KBAS 126   0 49           -125 2                                            128
12603000  NSTR 126   00                         DRYJOHN AIR FILTER
12802000  KBAS 128   0 27 12        -122 2                            2               26
12803000  NSTR 128   01                         DRYJOHN AIR-TO-VACUUM FLOWMETER
1000309010  TABL   3   10   2           14           LIN    STP
1000310020  TITL   3   20 SHOWER ON/OFF SCHEDULE
1000311100  VALU   3 10021  0.          8.25         8.4167       8.5          8.6667      8.75
1000311110  VALU   3 11020  -1.         1.           -1.          1.           -1.         1.
1000311120  VALU   3 12021  8.9167      9.0          9.1667       9.25         9.4167      9.5
1000311130  VALU   3 13020  -1.         1.           -1.          1.           -1.         1.
1000311140  VALU   3 14021  9.6667      18.
1000311150  VALU   3 15020  -1.         -1.

1005809010  TABL  58   10   2           11           LIN    STP
1005810020  TITL  58   20NUMBER OF CREWMEN IN GALLEY VERSUS TIME
1005811100  VALU  58 10021  0.          9.           9.5          10.5         12.         12.75
1005811110  VALU  58 11020  2.          0.           2.           0.           6.          5.
1005811120  VALU  58 12021  13.         14.          15.5         16.          18.
1005811130  VALU  58 13020  2.          0.           2.           0.           0.

1006809010  TABL  68   10   2           19           LIN    STP
1006810020  TITL  68   20 NUMBER OF CREWMEN IN HYGIENE AREA VERSUS TIME
1006811100  VALU  68 10021  0.          8.25         8.4167       8.5          8.6667      8.75
1006811110  VALU  68 11020  3.          2.           3.           2.           3.          2.
1006811120  VALU  68 12021  8.9167      9.0          9.1667       9.25         9.4167      9.5
1006811130  VALU  68 13020  3.          2.           3.           2.           3.          2.
1006811140  VALU  68 14021  9.6667      11.65        12.          12.75        13.0        14.0
1006811150  VALU  68 15020  0.          1.           0.           1.           2.          0.
1006811160  VALU  68 16021  18.
1006811170  VALU  68 17020  0.

1007909010  TABL  79   10   2           34           LIN    STP
1007910020  TITL  79   20 WIPE WETTING UNIT  -  USAGE SCHEDULE
1007911100  VALU  79 10021  6.          8.01         8.22         8.32         8.5         9.5
1007911110  VALU  79 11020  -1.         1.           -1.          1.           -1.         1.
1007911120  VALU  79 12021  10.         10.5         11.58        11.75        11.89       12.
1007911130  VALU  79 13020  -1.         1.           -1.          1.           -1.         1.
1007911140  VALU  79 14021  12.08       12.17        12.27        12.7         12.8        13.
1007911150  VALU  79 15020  -1.         1.           -1.          1.           -1.         1.
1007911160  VALU  79 16021  14.         14.5         14.75        15.          15.25       15.5
1007911170  VALU  79 17020  -1.         1.           -1.          1.           -1.         1.
1007911180  VALU  79 18021  16.         17.          17.12        17.25        17.38       17.50
1007911190  VALU  79 19020  -1.         1.           -1.          1.           -1.         1.
1007911200  VALU  79 20021  17.67       17.75        17.86        18.1
1007911210  VALU  79 21020  -1.         1.           -1.          1.

1009509010  TABL  95   10   2           5            LIN    STP
1009510020  TITL  95   20 FOOD TRAYS ON/OFF SCHEDULE
1009511100  VALU  95 10021  0.          10.          12.          16.          18.
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1009511110  VALU  95 1102D  -1.          1.          -1.          1.          -1.
1012109010  TABL 121   10    2          52          LIN   STP
1012110020  TITL 121   20 DRYJOHN USAGE PHASE VERSUS TIME
1012111100  VALU 121 10021  0.          8.          8.1          8.25        8.35        8.5
1012111110  VALU 121 1102D  0.          3.          0.           3.          0.          3.
1012111120  VALU 121 12021  8.5         9.5         9.5125       10.         10.0125     10.5
1012111130  VALU 121 1302D  0.          1.          0.           1.          0.          1.
1012111140  VALU 121 14021  10.5125     11.         11.0125      11.65       11.6625     11.75
1012111150  VALU 121 1502D  0.          1.          0.           1.          0.          1.
1012111160  VALU 121 16021  11.7625     11.9        11.9125      12.75       12.7625     12.9
1012111170  VALU 121 1702D  0.          1.          0.           1.          0.          1.
1012111180  VALU 121 18021  12.9125     13.0        13.0125      14.25       14.2625     14.5
1012111190  VALU 121 1902D  0.          1.          0.           1.          0.          1.
1012111200  VALU 121 20021  14.5125     14.75       14.7625      15.0        15.1        15.25
1012111210  VALU 121 2102D  0.          1.          0.           3.          0.          3.
1012111220  VALU 121 22021  15.35       15.5        15.6         17.0        17.0125     17.13
1012111230  VALU 121 2302D  0.          3.          0.           1.          0.          1.
1012111240  VALU 121 24021  17.1425     17.25       17.2625      17.5        17.5125     17.75
1012111250  VALU 121 2502D  0.          1.          0.           1.          0.          1.
1012111260  VALU 121 26021  17.7625     17.88       17.8925      18.
1012111270  VALU 121 2702D  0.          1.          0.           0.
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8500 LOCATIONS ALLOTED IN MAIN PROGRAM (G189) FOR K AND V ARRAY
THE RECOMMENDED MINIMUM IS 5000 FOR THE K AND V ARRAY

3907 LOCATIONS USED FOR COMP. K AND V DATA

4237 IS LAST LOCATION USED FOR TABLE DATA

THERE ARE 4263 UNUSED K AND V ARRAY LOCATIONS
CASE NO. 1 IS A BASIC CASE

LARGEST COMPONENT NO. USED IN CURRENT SIMULATION SPECIFIED AS. NCOMPS= 129

START SOLUTION PATH AT COMPONENT NO. 85

INITIAL SOLUTION PATH - (USER MAY ALTER DURING RUN)

85, 83, 86, 87, 56, 58, 60, 61, 62, 63, 64, 68, 70, 78, 79, 71, 72, 73, 74, 40,
41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 22, 15, 16, 17, 18, 19, 3, 24, 20,
21, 14, 23, 120, 121, 122, 123, 125, 126, 128, 26, 35, 31, 32, 33, 34, 28, 29, 30, 6,
27, 25, 65, 66, 80, 75, 76, 77, 84, 88, 89, 91, 98, 90, 92, 93, 94, 95, 97,

ALTERNATE COMPONENTS - (COMPONENTS WHICH MAY BE INCLUDED IN SOLUTION PATH AS A RESULT OF AN INSTRUCTION CHANGE
OR COMPONENTS USED FOR DATA STORAGE)
- -(FLAG BY INPUTTING A SUBROUTINE NO. IN KK(I,1), THIS ALSO FORCES PRINTOUT OF DATA)- -

55, 96, .

COMPONENT ROWS NOT SPECIFIED IN THE SOLUTION PATH OR AS AN ALTERNATE PATH OR AS DATA STORAGE

1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 13, 36, 37, 38, 39, 52, 53, 54, 57, 59,
67, 69, 81, 82, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114,
115, 116, 117, 118, 119, 124, 127, 129,

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PLOT0                                   SPACE STATION APPLIANCES SIMULATION
PLOT21     58   83                     NUMBER OF MEN IN GALLEY AREA
PLOT21     68   83                     NUMBER OF MEN IN HYGIENE AREA
PLOT23                                 GALLEY AIR TEMPERATURES ***  DEG F
PLOT2      60    2                     CABIN TEMP
PLOT2      60   98                     CABIN DEW POINT
PLOT2      56    2                     ARS RETURN
PLOT23                                 HYGIENE AREA AIR TEMP ***  DEG F
PLOT2      70    2                     CABIN TEMP
PLOT2      70   98                     CABIN DEW POINT
PLOT2      56   21                     ARS RETURN
PLOT22                                 GALLEY AIR PARTIAL PRESSURES
PLOT2      60  100                     CO2 (MM HG)
PLOT2      60   94                     OXYGEN (PSIA)
PLOT22                                 HYGIENE AREA AIR PARTIAL PRESSURES
PLOT2      70  100                     CO2 (MM HG)
PLOT2      70   94                     OXYGEN (PSIA)
PLOT23                                 GALLEY APPLIANCES AIR OUTLET TEMP - (F)
PLOT2      62    2                     FREEZER CHILLER
PLOT2      51    2                     DISH DRYER
PLOT2      66    2                     APPLIANCE-HX RETURN
PLOT24                                 HYGIENE AREA APPLIANCES AIR OUT TEMP- (F)
PLOT2      18   21                     SHOWER BLEED AIR
PLOT2     126    2                     DRYJOHN
PLOT2      25    2                     CLOTHES DRYER
PLOT2      77    2                     APPLIANCE-HX RETURN
PLOT23                                 WATER TEMPERATURES ***  DEG F
PLOT2      85   70                     WASH WATER STORAGE
PLOT2      89    2                     APPLIANCES RETURN-89
PLOT2      92    2                     VCD INLET
PLOT24                                 GALLEY AIR FLOWRATES ***  LB/HR
PLOT2      56    1                     ARS SUPPLY
PLOT2      64    1                     CABIN FAN - H/X
PLOT2      61    1                     FREEZER
PLOT2      63    1                     DISHWASHER
PLOT24                                 HYGIENE AREA AIR FLOWRATES *** LB/HR
PLOT2      74    1                     CABIN FAN - H/X
PLOT2      71    1                     SHOWER
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PLOT2     72    1      DRYJOHN
PLOT2     73    1      CLOTHES WASHER
PLOT24                   WASH WATER FLOWRATES  ***  LB/HR
PLOT2     85    1      STORAGE TOTAL OUT
PLOT2     86    1      TO SHOWER
PLOT2     87    1      TO CLOTHES WASHER
PLOT2     87   20      TO DISH WASHER
PLOT24                   WASH WATER FLOWRATES  ***  LB/HR
PLOT2     89    1    TOTAL APPLIANCES OUT
PLOT2     23    1      SHOWER OUT
PLOT2     34    1      CLOTHES WASHER OUT
PLOT2     45    1      DISH WASHER OUT
PLOT25                   WATER PROCESSING FLOWRATES  ***  LB/HR
PLOT2     98    1      R/O UNIT FEED INLET
PLOT2     90   20      R/O PRODUCT OUT
PLOT2     70    1      R/O BRINE OUT
PLOT2    123    1      FROM DRYJOHN
PLOT2     92    1      INTO VCD TANK (93)
PLOT23                   REFRIGERATOR TEMPERATURES  ***  DEG F
PLOT2     97   51      FOOD SURFACE
PLOT2     96    2      COOLANT INLET
PLOT2     97    2      COOLANT OUTLET
PLOT23                   FREEZER TEMPERATURES  ***  DEG F
PLOT2     62   51      FOOD SURFACE
PLOT2     61    2      COOLING AIR INLET
PLOT2     62    2      COOLING AIR OUTLET
PLOT22                   CHILLER LOCKER HEAT GAIN  ***  BTU/HR
PLOT2     62  132      FREEZER
PLOT2     97  123      REFRIGERATOR
PLOT22                   CHILLR HEAT ADDED BY OPENING DOOR ** BTU
PLOT2     62  105      FREEZER
PLOT2     97  105      REFRIGERATOR
PLOT22                   FOOD HEATING TRAYS HEAT FLOW *** BTU/HR
PLOT2     95   65      HEATERS Q-IN
PLOT2     95   53      LOSS TO AMBIENT
PLOT21     6   95      CLOTHES WASHER/DRYER CYCLE PHASE
PLOT25                   CLOTHES WASHER/DRYER TUB TEMPERATURES- F
PLOT2     30    2      WATER IN
PLOT2      6    2      WATER OUT
PLOT2     26    2      AIR IN
PLOT2      6   21      AIR OUT
PLOT2      6   72      DRUM/CONTENTS
PLOT24                   CLOTHES WASHER/DRYER FLOWRATES *** LB/HR
PLOT2     30    1      WATER INLET
PLOT2      6    1      WATER OUTLET
PLOT2     26    1      AIR INLET
PLOT2      6   20      AIR OUTLET
PLOT24                   CLOTHES DRYING PROCESS PARAMETERS
PLOT2      6  115      WATER IN CLOTHES-LB
PLOT2      6  112      EVAP RATE (LB/HR)
PLOT2      6  113    RELATIVE HUMIDITY IN
PLOT2      6  114    RELATIVE HUMIDTY OUT
PLOT21    49   95      DISH WASHER/DRYER CYCLE PHASE
PLOT25                   DISH WASHER/DRYER TUB TEMPERATURES ** F
PLOT2     48    2      WATER IN
PLOT2     49    2      WATER OUT
PLOT2     48    2      AIR IN
PLOT2     49   21      AIR OUT
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PLOT2      49   72          DRUM/CONTENTS
PLOT24                      DISH WASHER/DRYER FLOWRATES  ***  LB/HR
PLOT2      48    1          WATER INLET
PLOT2      49    1          WATER OUTLET
PLOT2      40    1          AIR INLET
PLOT2      49   20          A   OUTLET
PLOT24                      D  H DRYING PROCESS PARAMETERS
PLOT2      49  115          WATER ON DISHES- LB
PLOT2      49  112          EVAP RATE (LB/HR)
PLOT2      49  113          RELATIVE HUMIDITY IN
PLOT2      49  114          RELATIVE HUMIDTY OUT
PLOT23                      SHOWER STALL FLOWRATES  ***  LB/HR
PLOT2      19    1          AIR IN
PLOT2      22    1          WATER IN
PLOT2       3    1          OUTLET TOTAL
PLOT23                      SHOWER STALL TEMPERATURES  ***  DEG F
PLOT2      19    2          AIR IN
PLOT2      22    2          WATER IN
PLOT2       3    2          OUTLET
PLOT22                      SHOWER EVAP RATE AND RELATIVE HUMIDITY
PLOT2       3   83          EVAPORATION (LB/HR)
PLOT2       3   92          OUTLET HUMIDITY
PLOT21    121   66          DRYJOHN USAGE PHASE
PLOT24                      DRYJOHN FLUID FLOWRATES  ***  LB/HR
PLOT2     120    1          COLLECTOR IN
PLOT2     121    1          COLLECTOR OUT
PLOT2     120   20          URINAL IN
PLOT2     121   20          URINAL OUT
PLOT24                      DRYJOHN FLUID TEMPERATURES  ***  DEG F
PLOT2     120    2          INLET
PLOT2     121    2          COLLECTOR OUT
PLOT2     121   21          URINAL OUT
PLOT2     121   51          COLLECTOR CONTENTS
PLOT23                      DRYJOHN DRYING PROCESS PARAMETERS
PLOT2     121  115          LB H20/LB CONTENTS
PLOT2     121   76          EVAP RATE (LB/HR)
PLOT2     121   97          COMMODE REL. HUMDTY
ENDC
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@ FOR,* GPOLY1,GPOLY1                                                    25 SEP 75          22:10
UNIVAC 1108 FORTRAN V EXEC II LEVEL 25A  -(EXEC8 LEVEL E12D10010A)
THIS COMPILATION WAS DONE ON 25 SEP 75 AT 22:10:13


   SUBROUTINE GPOLY1     ENTRY POINT 002051

   STORAGE USED: CODE(1) 002055; DATA(0) 000174; BLANK COMMON(2) 000000

    COMMON BLOCKS:

    0003    COMP    000117
    0004    RARRAY  000002
    0005    ECLST1  000014
    0006    KANOV   000001
    0007    MISC    000036
    0010    CASE    000002
    0011    PROPTY  001002
    0012    SOURCE  000102
    0013    POW     000001
    0014    VLOC    000010
    0015    APPLNC  000021

   EXTERNAL REFERENCES (BLOCK, NAME)

    0016    VV
    0017    VALUE
    0020    RESET
    0021    CLOCK
    0022    KK
    0023    NIOOS
    0024    NIO2S
    0025    NERR3S

   STORAGE ASSIGNMENT  (BLOCK, TYPE, RELATIVE LOCATION, NAME)

    0001    000112  10L         0001    002005  12000L      0001    002020  12100L      0001    002026  12300L      0001    000215  26000L
    0001    000225  26500L      0001    000254  33000L      0001    000276  34000L      0001    000353  35000L      0001    000376  35200L
    0001    001030  36400       0001    000461  40000L      0001    000471  40500L      0001    000520  41000L      0001    000543  41200L
    0001    000626  44000L      0001    000650  45000L      0001    000727  58000L      0001    000753  60000L      0001    001016  61000L
    0001    001023  62000L      0001    001050  63000L      0001    001062  64000L      0001    001074  68000L      0001    001120  70000L
    0001    001153  71000L      0001    001165  72000L      0001    001206  73000L      0001    001220  74000L      0001    001232  78000L
    0001    001245  83000L      0001    001252  85000L      0001    001452  85100L      0001    001531  85150L      0001    001573  86200L
    0001    001614  85300L      0001    001616  85500L      0000    000005  8575F       0001    001672  86000L      0001    001677  67000L
    0001    001704  93000L      0001    001724  93400L      0001    001732  93500L      0001    001737  93600L      0001    001746  95000L
    0001    001777  97000L      0012  R 000000  A             0012    000023  B           0011    000001  CP          0012    000046  CPA.
    0012    000047  CPB         0011    000144  CPCONL      0011    000145  CPCONV      0011    000146  CPCO2       0011    000147  CPDIL
    0011    000150  CPOXY       0011    000151  CPTC        0011    000000  CPO         0003    000000  DS          0000  R 000001  DTH.
    0007  R 000000  DTIME       0000  R 000002  DUM         0011    000152  GAMGAS      0007    000001  GRAV        0015  R 000015  HX60
    0015  R 000016  HX70        0012    000050  IA1         0012    000051  IB1         0014    000002  IC          0014    000006  IEX
    0004    000000  IMAXR       0014    000007  INEXK       0000    000164  INJP$       0014    000000  IP          0014    000003  IQ
    0014    000001  IS          0014    000004  IV          0014    000005  IVT         0006  I 000000  K           0005  I 000000  KCHOUT
    0007    000002  KFLSYS      0022  I 000000  KK          0007    000003  KOUTPT      0007    000004  KPDROP      0005    000001  KPRNT

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0005		000002	KPTINV	0007	I	000005	KSYPAS	0007		000006	KTRANS	0005		000006	KWIT	0005		000007	KWIT1
0005		000010	KWIT2	0005		000011	KWIT3	0005		000012	KWIT4	0000	I	000003	L	0015	I	000001	LPHASE
0007		000007	LPSUM	0007		000014	MAXCI	0007		000015	MAXLP	0007		000016	MAXSLP	0007		000017	MAXSSI
0007		000024	MINSSI	0003	I	000017	N	0012		000052	NA	0003		000020	NA1	0012		000053	NB
0003		000021	NB1	0003		000022	NC	0003		000023	NCAB	0010		000000	NCASE	0003		000024	NCFL
0007		000020	NCOMPS	0000	I	000004	NDUM	0007		000021	NEWDT	0003	I	000025	NEXT	0003		000026	NEXV
0015	I	000004	NJON	0003		000027	NK	0003		000030	NKEX	0003	I	000031	NKS	0003		000032	NKT
0007		000022	NLAST	0003		000033	NLFL	0003		000034	NP	0007		000023	NPASPD	0003		000035	NPASS
0003		000036	NPF	0012		000054	NPFS	0012		000055	NPFST	0003		000037	NPFT	0015	I	000000	NPHASE
0003		000045	NQ	0015		000014	NREF	0010		000001	NRSCS	0003		000046	NS	0003		000047	NSF
0012		000063	NSFS	0012		000064	NSFST	0003		000050	NSFT	0015	I	000012	NSHFLO	0015	I	000011	NSHRT
0015	I	000003	NSHWR	0003	I	000056	NSTR	0003		000100	NSUBR	0005		000013	NUFF	0003		000101	NV
0015	I	000002	NVCD	0003		000102	NVT	0007		000025	PGMIN	0007		000026	PLMIN	0013	L	000000	POWER
0004	R	000001	R	0011		000154	RHO	0012		000072	RHOA	0012		000073	RHOB	0011		000153	RHOO
0007		000027	START	0007	L	000030	STEADY	0007	R	000031	TIME	0000	R	000000	TIMEH	0007	R	000032	TIMEMX
0007		000033	TMAX	0007		000034	TMIN	0015	R	000013	TSHWR	0006		000000	V	0017	R	000000	VALUE
0011		000320	VISC	0012		000074	VISCA	0012		000075	VISCB	0011		000317	VISCO	0011		000463	VISGAS
0011		001001	VISLIQ	0016	R	000000	VV	0015	R	000005	WCLO	0015	R	000006	WDIS	0015	R	000017	WIPE
0015	R	000010	WSHRT	0015	R	000007	WSHWR	0011		000465	WTM	0012		000076	WTMA	0007		000035	WTMAX
0012		000077	WTMB	0011		000630	WTMCON	0011		000631	WTMDIL	0011		000632	WTMTC	0011		000464	WTMO
0015	R	000020	WWIPE	0011		000634	XK	0012		000100	XKA	0012		000101	XKB	0011		000777	XKGAS
0011		001000	XKLIQ	0011		000633	XKO	0003		000103	Y								

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00101        SUBROUTINE GPOLY1                                                GPOLY  1
00103        COMMON   /COMP/ DS(15),N,NA1,NB1,NC,NCAB,NCFL,NEXT,NEXV,NK,       GPOLY  2
00103      1   NKEX,NKS,NKT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),        GPOLY  3
00103      2   NSTR(18),NSUBR,NV,NVT,Y(12)                                     GPOLY  4
00104        COMMON   /RARRAY/  IMAXR,R(1)                                     GPOLY  5
00105        COMMON   /ECLST1/  KCHOUT,KPRNT,KPTINV(4),KWIT,KWIT1,KWIT2,        GPOLY  6
00105      1   KWIT3,KWIT4,NUFF                                                GPOLY  7
00106        COMMON   /KANDV/ K                                                GPOLY  8
00107        COMMON   /MISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,   GPOLY  9
00107      1   LPSUM(5),MAXCI,MAXLP,MAXSLP,MAXSSI,NCOMPS,NEWDT,NLAST,NPASPD,   GPOLY 10
00107      2   MINSSI,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX     GPOLY 11
00110        COMMON   /CASE/ NCASE,NRSCS                                      GPOLY 12
00111        COMMON   /PROPTY/  CPO,CP(99),CPCONL,CPCONV,CPCO2,CPDIL,CPOXY,CPTC,GPOLY 13
00111      1   GAMGAS,RHOO,RHO(99),VISCO,VISC(99),VISGAS,WTMO,WTM(99),WTMCON,  GPOLY 14
00111      2   WTMOIL,WTMTC,XKO,XK(99),XKGAS,XKLIQ,VISLIQ                      GPOLY 15
00112        COMMON   /SOURCE/  A(19),B(19),CPA,CPB,IA1,IB1,NA,NB,NPFS,NPFST(6),GPOLY 16
00112      1   NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,WTMA,WTMB,XKA,XKB           GPOLY 17
00113        COMMON /POW/ POWER                                                GPOLY 18
00114        COMMON /VLOC/ IP,IS,IC,IQ,IV,IVT,IEX,INEXK                        GPOLY 19
00115        COMMON /APPLNC/ NPHASE,LPHASE,NVCD,NSHWR,NJON,WCLO,WDIS,WSHWR
00115      *, WSHRT,NSHRT,NSHFLO,TSHWR,NREF,HX60,HX70,WIPE,WWIPE
00116        LOGICAL POWER                                                     GPOLY 20
00117        DIMENSION V(1),K(1)                                               GPOLY 21
00120        EQUIVALENCE (V,K)                                                 GPOLY 22
00121        LOGICAL  STEADY                                                   GPOLY 23
00122        TIMEH=TIME/3600.
00123        DTH=DTIME/3600.
00124        IF (N.GT.69) GO TO 10
00126        IF (N .EQ. 26) GO TO 2600
00130        IF (N .EQ. 33) GO TO 3300
00132        IF (N .EQ. 34) GO TO 3400
00134        IF (N .EQ. 35) GO TO 3500
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00136    33*          IF (N .EQ. 40) GO TO 4000
00140    34*          IF (N .EQ. 41) GO TO 4100
00142    35*          IF (N .EQ. 44) GO TO 4400
00144    36*          IF (N .EQ. 45) GO TO 4500
00146    37*          IF (N .EQ. 58) GO TO 5800
00150    38*          IF (N .EQ. 60) GO TO 6000
00152    39*          IF (N .EQ. 61) GO TO 6100
00154    40*          IF (N .EQ. 62) GO TO 6200
00156    41*          IF (N .EQ. 63) GO TO 6300
00160    42*          IF (N .EQ. 64) GO TO 6400
00162    43*          IF (N .EQ. 68) GO TO 6800
00164    44*          RETURN
00165    45*       10 IF (N .EQ. 70) GO TO 7000
00167    46*          IF (N .EQ. 71) GO TO 7100
00171    47*          IF (N .EQ. 72) GO TO 7200
00173    48*          IF (N .EQ. 73) GO TO 7300
00175    49*          IF (N .EQ. 74) GO TO 7400
00177    50*          IF (N .EQ. 78) GO TO 7800
00201    51*          IF (N .EQ. 83) GO TO 8300
00203    52*          IF (N .EQ. 85) GO TO 8500
00205    53*          IF (N .EQ. 86) GO TO 8600
00207    54*          IF (N .EQ. 87) GO TO 8700
00211    55*          IF (N .EQ. 93) GO TO 9300
00213    56*          IF (N .EQ. 95) GO TO 9500
00215    57*          IF (N .EQ. 97) GO TO 9700
00217    58*          IF (N .EQ.120) GO TO 12000
00221    59*          IF (N .EQ.121) GO TO 12100
00223    60*          IF (N .EQ.122) GO TO 12200
00225    61*          RETURN
00225    62*    C        CLOTHES DRYER AIR HEATER CONTROL
00226    63*     2600 IF (NPHASE.EQ.7) GO TO 2650
00230    64*          NSTR(1)=0
00231    65*          RETURN
00232    66*     2650 DUM=VV(6,72)
00233    67*          IF (DUM.LT. 135.) R(65)=240.
00235    68*          IF (DUM.GT. 155.) R(65)=0.
00237    69*          NSTR(1)=2
00240    70*          RETURN
00240    71*    C        CLOTHES WASHER WATER CIRCULATE/OUT SPLITTER
00241    72*     3300 R(65)=1.0
00242    73*          IF (NPHASE.EQ.3 .OR. NPHASE.EQ.6) R(65)=0.0
00244    74*          RETURN
00244    75*    C        CLOTHES WASHER WATER SPLITTER TO ACCUMULATOR
00245    76*     3400 R(65)=0.0
00246    77*          IF (NPHASE.NE.6 .OR. VV(35,69).GT.69.9) RETURN
00250    78*          IF (A(1).GT.1000.) A(1)=275.
00252    79*          R(65)=(69.99-VV(35,69))/DTH/A(1)
00253    80*          IF (R(65).GT.1.) R(65)=1.
00255    81*          RETURN
00255    82*    C        CLOTHES WASHER ACCUMULATOR OUTLET FLOW CONTROL
00256    83*     3500 R(1)=0.0
00257    84*          NEXT=31
00260    85*          IF (NPHASE*(NPHASE-7) .NE. 0) GO TO 3520
00262    86*          IF (TIME-VV(6,108) .LT. 200.) GO TO 3520
00264    87*          NEXT=6
00265    88*     3520 IF (NPHASE.NE.1) RETURN
00267    89*          IF (R(69) .LT. 5.5) RETURN
00271    90*          R(1)= (VV(6,102,-VV(6,96)) ;DTIME*3600.*1.001
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00272    91.          IF (R(1) .GT. 300.) R(1)=300.
00274    92.          DUM=R(69)/DTIME*3600. *.95
00275    93.          IF (R(1) .GT. DUM) R(1)=DUM
00277    94.          RETURN
00277    95.    C        DISH DRYER AIR HEATER CONTROL
00300    96.     4000 IF (LPHASE.EQ.7) GO TO 4050
00302    97.          NSTR(1)=0
00303    98.          RETURN
00304    99.     4050 DUM=VV(49,72)
00305   100.          IF (DUM.LT.135.) R(65)=760.
00307   101.          IF (DUM.GT.155.) R(65)=0.
00311   102.          NSTR(1)=2
00312   103.          RETURN
00312   104.    C        DISH WASHER ACCUMULATOR OUTLET FLOW CONTROL
00313   105.     4100 R(1)=0.
00314   106.          NEXT=42
00315   107.          IF (LPHASE*(LPHASE-7) .NE. 0) GO TO 4120
00317   108.          IF (TIME-VV(49,100) .LT. 200.) GO TO 4120
00321   109.          NEXT=49
00322   110.     4120 IF (LPHASE.NE. 1) RETURN
00324   111.          IF (R(69) .LT. 3.) RETURN
00326   112.          R(1)=( VV(49,102)-VV(49,96)) /DTIME*3600.*1.001
00327   113.          IF (R(1) .GT. 300.) R(1)=300.
00331   114.          DUM=R(69)/DTIME*3600. *.95
00332   115.          IF (R(1) .GT. DUM) R(1)=DUM
00334   116.          RETURN
00334   117.    C        DISH WASHER WATER CIRCULATE/DUT SPLITTER
00335   118.     4400 R(65)=1.0
00336   119.          IF (LPHASE.EQ.3 .OR. LPHASE.EQ.6) R(65)=0.
00340   120.          RETURN
00340   121.    C        DISH WASHER WATER SPLITTER TO ACCUMULATOR
00341   122.     4500 R(65)=0.
00342   123.          IF (LPHASE.NE.6 .OR. VV(41,69).GT.19.9) RETURN
00344   124.          IF (A(1).GT.1000.) A(1)=150.
00346   125.          R(65)=(19.99-VV(41,69))/DTH/A(1)
00347   126.          IF (R(65).GT.1.) R(65)=1.
00351   127.          RETURN
00351   128.    C        SET NUMBER OF CREWMEN IN GALLEY AREA
00352   129.     5800 DUM=VALUE(58,TIMEH,0.)
00353   130.          R(83)=DUM
00354   131.          K(NKS+1)=IFIX(DUM+.1)
00355   132.          RETURN
00355   133.    C        GALLEY CABIN SENSIBLE HEAT ADDITION (EQUIP., LIGHTS, APPLIANCES)
00356   134.     6000 R(66)=1000.+VV(95,53)  +13.*VV(62,53) +3.*VV(97,53) +VV(49,53)
00356   135.    *       +VV(41,53)
00357   136.          RETURN
00357   137.    C        SET AIR FLOW TO FREEZER CONDENSER
00360   138.     6100 R(1)=13.*64.
00361   139.          RETURN
00361   140.    C        DECREASE FREEZER AIR FLOW FOR ONLY 1 FREEZER
00362   141.     6200 A(1)=A(1)/13.
00363   142.          DO 6220 L=5,14
00366   143.     6220 IF ( (L-8)*(L-9) .NE. 0) A(L)=A(L)/13.
00371   144.          RETURN
00371   145.    C        DISH DRYER AIR INLET FLOW SET
00372   146.     6300 R(1)=0.
00373   147.          IF (LPHASE.EQ.7) R(1)=38.
00375   148.          RETURN
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00375    149*        C        GALLEY TEMPERATURE CONTROL FAN, H/X SET
00376    150*         6400 R(65)=0.
00377    151*              IF (HX60 .GT. 0.) R(65)=-3000.
00401    152*              RETURN
00401    153*        C        SET NUMBER OF CREWMEN IN HYGIENE AREA
00402    154*         6800 DUM=VALUE(68,TIMEH,0.)
00403    155*              R(83)=DUM
00404    156*              K(NKS+1)=IFIX(DUM+.1)
00405    157*              RETURN
00405    158*        C        HYGIENE AREA SENSIBLE HEAT ADDITION (EQUIP., LIGHTS, APPLIANCES)
00406    159*         7000 R(66)=1000.+VV(6,53)+VV(3,53)+VV(121,53) +VV(35,53)
00407    160*              RETURN
00407    161*        C        SET AIR BLEED FLOW INTO SHOWER
00410    162*         7100 R(1)=0.
00411    163*              IF (NSHWR.GT.0) R(1)=42.6
00413    164*              RETURN
00413    165*        C        SET AIR FLOW TO DRYJOHN
00414    166*         7200 R(1)=0.
00415    167*              KCHOUT=0
00416    168*              IF (NJON.EQ.1) R(1)=85.2
00420    169*              IF (NJON.EQ.3) R(1)=149.1
00422    170*              RETURN
00422    171*        C        AIR FLOW SPLITTER TO CLOTHES DRYER
00423    172*         7300 R(1)=0.
00424    173*              IF (NPHASE.EQ.7) R(1)=12.
00426    174*              RETURN
00426    175*        C        HYGIENE AREA TEMPERATURE CONTROL FAN, H/X SET
00427    176*         7400 R(65)=0.
00430    177*              IF (HX70 .GT. 0.) R(65)=-2000.
00432    178*              RETURN
00432    179*        C        SET AIR SPLITTER FLOW TO WIPE WETTING UNIT
00433    180*         7800 R(20)=0.
00434    181*              IF (WWIPE .GT. 1.) R(20)=149.1
00436    182*              RETURN
00436    183*        C        SET WATER SPLITTER FLOW TO WIPE WETTING UNIT
00437    184*         8300 R(20)=WWIPE
00440    185*              RETURN
00440    186*        C        CHECK APPLIANCE SCHEDULES FROM TABLES
00441    187*         8500 NPHASE=IFIX( VV(6,95)+.2 )
00442    188*              LPHASE=IFIX(VV(49,95)+.2 )
00443    189*              DUM= VALUE(121,TIMEH,0.)
00444    190*              NJON=IFIX(DUM+.2)
00445    191*              DUM= VALUE(3,TIMEH,0.)
00446    192*              NDUM=NSHWR
00447    193*              NSHWR=IFIX(DUM+1.2)
00447    194*        C                       WASH WATER TANK HEATER CONTROL
00450    195*              IF (R(70) .LT. 158.) R(95)=4300.
00452    196*              IF (R(70) .GT. 165.) R(95)=0.
00452    197*        C        CONTROL WATER FLOW TO WIPE WETTING UNIT
00454    198*              DATA WIPE /-1./
00456    199*              DUM=WIPE
00457    200*              WIPE=VALUE(79,TIMEH,0.)
00460    201*              WWIPE=0.
00461    202*              IF (DUM*WIPE .LT. 0.) WWIPE=20.
00461    203*        C        CONTROL WATER FLOW TO CLOTHES WASHER
00463    204*              WCLO=0.
00464    205*              IF ( (NPHASE-1)*(NPHASE-4) .NE. 0) GO TO 8510
00466    206*              IF (NPHASE .EQ.1 .AND. VV(36,69).GT. 5.5) GO TO 8510
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00470   207*          WCLO=( VV(6,102)-VV(6,96)) /DTIME*3600.*1.001
00471   208*          IF (WCLO .GT. 300.) WCLO=300.
00471   209*    C        CONTROL WATER FLOW TO DISH WASHER
00473   210*     8510 WDIS=0.
00474   211*          IF ( (LPHASE-1)*(LPHASE-4) .NE. 0) GO TO 8515
00476   212*          IF (LPHASE .EQ. 1 .AND. VV(41,69).GT. 3.) GO TO 8515
00500   213*          WDIS=( VV(49,102)-VV(49,96)) /DTIME*3600.*1.001
00501   214*          IF (WDIS .GT. 300.) WDIS=300.
00501   215*    C        CONTROL WATER FLOW TO SHOWER
00503   216*     8515 WSHWR=0.
00504   217*          IF (NSHWR .LE. 0) GO TO 8550
00506   218*          IF (NDUM*NSHWR .GT. 0) GO TO 8520
00510   219*          NSHRT=IFIX(.66*8.34/3./180.*3600./DTIME)+1
00511   220*          WSHRT=.66*8.34/3./(DTIME*FLOAT(NSHRT))*3600.
00512   221*          TSHWR=TIME+4.3*60.
00513   222*          NSHFLO=1
00514   223*          GO TO 8530
00515   224*     8520 NSHFLO=NSHFLO+1
00516   225*          IF (NSHFLO.LE.NSHRT) GO TO 8530
00520   226*          IF (TIME .LT. TSHWR) GO TO 8550
00522   227*          TSHWR=TSHWR+4.3*60.
00523   228*          NSHFLO=1
00524   229*     8530 WSHWR=WSHRT
00525   230*     8550 R(1)=WSHWR+WCLO+WDIS+WWIPE
00525   231*    C        CONTROL PRINT-OUT
00526   232*          KCHOUT=0
00526   233*    C        CHECK FOR MAX TIME
00527   234*          IF (KSYPAS .EQ. 0) CALL RESET
00531   235*          CALL CLOCK(DUM)
00532   236*          IF (DUM+9. .GT. 27.) TIMEMX=TIME+200.
00534   237*          WRITE (6,8575) TIME,DUM,NPHASE,LPHASE,NJON,NSHWR,NVCD,NSHFLO,
00534   238*         * NSHRT,WCLO,WDIS,WSHWR,WSHRT,TSHWR
00554   239*     8575 FORMAT (// '  TIME=',F9.1, '  COMP-MIN=',F6.2, '  NPHASE=',I4,
00554   240*         2 '  LPHASE=',I4, '  NJON=',I4, '  NSHWR=',I4, '  NVCD=',I4,
00554   241*         3 '  NSHFLO=',I4, '  NSHRT=',I4/ '  WCLO=',G12.5, '  WDIS=',G12.5,
00554   242*         4 '  WSHWR=',G12.5, '  WSHRT=',G12.5, '  TSHWR=',G12.5//)
00555   243*          RETURN
00555   244*    C        SHOWER WATER FLOW CONTROL
00556   245*     8600 R(1)=WSHWR
00557   246*          RETURN
00557   247*    C        SET WATER FLOW TO CLOTHES WASHER FROM SYSTEM
00560   248*     8700 R(1)=WCLO
00561   249*          RETURN
00561   250*    C        CONTROL VCD PROCESSING
00562   251*     9300  IF (KSYPAS.LT.1) NVCD=9
00564   252*          IF (NVCD .GT.0) GO TO 9350
00566   253*           IF (R(69) .GE. 8.0) GO TO 9360
00570   254*     9340  R(1)=0.
00571   255*          NVCD=-9
00572   256*          RETURN
00573   257*     9350  IF (R(69) .LE. 0.8) GO TO 9340
00575   258*     9360  R(1)=2.45
00576   259*          NVCD=9
00577   260*          RETURN
00577   261*    C        FOOD HEATING TRAYS SCHEDULE
00600   262*     9500 DUM=VALUE(95,TIMEH,0.)
00601   263*          IF (DUM*R(104) .GT. 0.) RETURN
00603   264*          R(104)=DUM
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00604    265.            IF (DUM.GT.0.) R(71)=-10.
00606    266.            RETURN
00606    267.      C        ADJUST REFRIGERATOR FLOW FOR 1 OF 3 IDENTICAL UNITS
00607    268.       9700 A(1)=A(1)/3.
00610    269.            RETURN
00610    270.      C        AIR INLET SPLITTER CONTROL TO DRYJOHN
00611    271.       12000 R(65)=1.0
00612    272.            IF (NJON.EQ.3) R(65)=0.571
00614    273.            RETURN
00614    274.      C        SET DRYJOHN USAGE PHASE
00615    275.       12100 R(66)=FLOAT(NJON)
00616    276.            RETURN
00616    277.      C        DRYJOHN VACUUM OUTLET SPLITTER
00617    278.       12200 R(65)=0.0
00620    279.            IF (KK(121,17) .GE. 0) R(65)=1.0
00622    280.            RETURN
00623    281.            END                                                    GPOLY408

      END OF COMPILATION:        NO  DIAGNOSTICS.

    GPOLY1          SYMBOLIC      25 SEP 75  06:41:40    0  03177416    14    283  (DELETED
    GPOLY1  CODE    RELOCATABLE   25 SEP 75  06:41:40    1  03207210    72      1  (DELETED
                                                          0  03207320    14    120
```

@ FOR,* GPOLY2,GPOLY2 25 SEP 75 22:10

```
UNIVAC 1108 FORTRAN V EXEC II LEVEL 25A  -(EXEC8 LEVEL E12010010A)
THIS COMPILATION WAS DONE ON 25 SEP 75 AT 22:10:17



    SUBROUTINE GPOLY2     ENTRY POINT 003616

    STORAGE USED: CODE(1) 003624; DATA(0) 000257; BLANK COMMON(2) 000000

     COMMON BLOCKS:

     0003   COMP    000117
     0004   ECLSTI  000014
     0005   RARRAY  000002
     0006   KANDV   000001
     0007   MISC    000036
     0010   CASE    000002
     0011   PROPTY  001002
     0012   SOURCE  000102
     0013   RPROP   000012
     0014   APPLNC  000021
     0015   APPL2   000031
     0016   POW     000001

    EXTERNAL REFERENCES (BLOCK, NAME)

     0017   RH
     0020   PROP
     0021   VV
     0022   PSAT
     0023   SV
     0024   SK
     0025   KK
     0026   HG
     0027   HF
     0030   HBALNC
     0031   NWDUS
     0032   NI025
     0033   NERR35

    STORAGE ASSIGNMENT  (BLOCK, TYPE, RELATIVE LOCATION, NAME)

     0001   000077 1000L    0001   003447 12100L   0001   003464 12500L   0001   003600 12600L   0001   000317 16000L
     0001   000347 2000L    0001   000706 2050L    0001   001225 2100L    0001   001233 2200L    0001   001445 22500L
     0001   001526 2300L    0001   001556 2350L    0001   001563 2500L    0001   000342 2600     0001   001571 27000L
     0001   000202 3000L    0001   001577 3000L    0001   001615 3200L    0001   000215 3300     0001   001644 43000L
     0001   001673 4000L    0001   001716 4900L    0001   001731 4930L    0001   001767 50000L   0001   001775 51000L
     0001   002003 5800L    0001   000246 600L     0001   002010 6000L    0001   002046 6020L    0001   002123 6030
     0001   002106 6200L    0001   000261 630L     0001   002143 6600L    0001   002150 6800L    0001   002155 70000L
     0001   002247 7700L    0001   002266 7900L    0001   002372 9100L    0001   002377 9700L    0001   002426 9750L
     0000   000067 9759F    0000   000070 9760F    0012 R 000000 A         0012 R 000023 B         0015 R 000011 BTIME
```


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```
0000 R 000003 B1
0000 R 000040 B14
0000 R 000004 B2
0000 R 000011 B7
0012 R 000047 CPB
0011   000150 CPOXY
0000 R 000020 DELCO2
0000 R 000000 DTH
0000 R 000054 D10
0015 R 000006 D15
0000 R 000044 D2
0000 R 000046 D4
0000 R 000053 D9
0000 R 000031 G25
0026 R 000000 HG
0012   000051 IB1
0007   000002 KFLSYS
0004   000002 KPTINV
0004   000007 KWIT1
0014 I 000001 LPHASE
0007   000015 MAXLP
0012   000052 NA
0003   000023 NCAB
0003 I 000025 NEXT
0003 I 000031 NKS
0007   000023 NPASPD
0003 I 000037 NPFT
0003   000046 NS
0014   000012 NSHFLO
0003   000100 NSUBR
0007   000025 PGMIN
0000 R 000065 QLIQ
0013   000002 RHOP
0000 R 000025 R30
0015 R 000027 STR21
0015 R 000014 STR6
0015 R 000022 STR88
0007   000034 TMIN
0012 R 000075 VISCB
0011   001001 VISLIQ
0000 R 000036 WLCOND
0007   000035 WTMAX
0013   000007 WTMS
0012 R 000100 XKA
0013   000011 XKS

0015 R 000000 B10
0000 R 000041 B15
0000 R 000005 B3
0000 R 000012 B8
0011   000144 CPCONL
0013   000000 CPP
0000 R 000016 DELH20
0007 R 000000 DTIME
0000 R 000055 D11
0000 R 000060 D16
0015 R 000007 D20
0000 R 000047 D5
0000 R 000021 EQCRIT
0000 R 000032 G29
0000 R 000035 HMIX
0005   000000 IMAXR
0025 I 000000 KK
0015 I 000026 KST16
0004   000010 KWIT2
0007   000007 LPSUM
0007   000016 MAXSLP
0003   000020 NA1
0010   000000 NCASE
0003   000026 NEXV
0003   000032 NKT
0003 I 000035 NPASS
0014 I 000000 NPHASE
0003 I 000047 NSF
0014   000011 NSHRT
0004   000013 NUFF
0007   000026 PLMIN
0005 R 000001 R
0013   000003 RHOS
0000 R 000026 R31
0015 R 000023 STR25
0015 R 000015 STR7
0007 R 000031 TIME
0014   000013 TSHWR
0013   000004 VISCP
0021 R 000000 VV
0014   000010 WSHRT
0012 R 000077 WTMB
0011   000632 WTMTC
0012 R 000101 XKB
0011   000633 XKO

0000 R 000014 B11
0015 R 000002 B16
0000 R 000006 B4
0000 R 000013 B9
0011 R 000145 CPCONV
0013   000001 CPS
0000 R 000017 DELO2
0000 R 000001 DUM
0015 R 000005 D12
0000 R 000061 D17
0000 R 000064 D21
0000 R 000050 D6
0011   000152 GAMGAS
0000 R 000033 G30
0014 R 000015 HX60
0000   000241 INJPs
0007   000003 KOUTPT
0007 I 000005 KSYPAS
0004   000011 KWIT3
0015 I 000012 LSHR
0007   000017 MAXSSI
0012   000053 NB
0003 I 000024 NCFL
0014 I 000004 NJON
0007   000022 NLAST
0003 I 000036 NPF
0003   000045 NQ
0012   000063 NSFS
0015 I 000010 NSHSUB
0003   000101 NV
0016 L 000000 POWER
0011   000154 RHO
0011   000153 RHOD
0007   000027 START
0015 R 000024 STR29
0015 R 000017 STR72
0000 R 000027 TIMEH
0006   000000 V
0013   000005 VISCS
0014   000005 WCLO
0014   000007 WSHWR
0011 R 000630 WTMCON
0011   000464 WTMO
0011   000777 XKGAS
0003   000103 Y

0000 R 000037 B12
0000 R 000042 B17
0000 R 000007 B5
0011 R 000001 CP
0011   000146 CPCO2
0011   000151 CPTC
0000 R 000015 DELTEM
0000 R 000022 DUM2
0000 R 000056 D13
0000 R 000062 D18
0000 R 000032 D22
0000 R 000051 D7
0007   000001 GRAV
0000 R 000034 G31
0014 R 000016 HX70
0006 I 000000 K
0007   000004 KPDROP
0007   000006 KTRANS
0004   000012 KWIT4
0015 I 000030 LSHSUB
0007   000024 MINSSI
0003   000021 NB1
0007   000020 NCOMPS
0003   000027 NK
0003   000033 NLFL
0012   000054 NPFS
0014   000014 NREF
0012   000064 NSFST
0014 I 000003 NSHAR
0014   000002 NVCO
0022 R 000000 PSAT
0012 R 000072 RHOA
0000 R 000023 R25
0007 L 000030 STEADY
0015 R 000025 STR31
0015 R 000020 STR73
0007   000032 TIMEMX
0011   000320 VISC
0011   000317 VISCO
0014   000006 WDIS
0011   000465 WTM
0011 R 000631 WTMDIL
0014 R 000020 WWIPE
0011   001000 XKLIQ

0015 R 000001 B13
0015 R 000003 B18
0000 R 000010 B6
0012 R 000046 CFA
0011   000147 CPOIL
0011   000000 CPO
0003   000000 DS
0000 R 000043 D1
0000 R 000057 D14
0000 R 000063 D19
0000 R 000045 D3
0015 R 000004 D8
0000 R 000030 GTOT
0027 R 000000 HF
0012   000050 IA1
0004 I 000000 KCHOUT
0004   000001 KPRNT
0004   000006 KWIT
0000 I 000002 L
0007   000014 MAXCI
0003 I 000017 N
0003   000022 NC
0007   000021 NEWDT
0003   000030 NKEX
0003   000034 NP
0012   000055 NPFST
0010   000001 NRSCS
0003 I 000050 NSFT
0003 I 000054 NSTR
0003   000102 NVT
0000 R 000066 QAIR
0012 R 000073 RHOR
0000 R 000024 R29
0015 R 000013 STR2
0015 R 000016 STR51
0015 R 000021 STR77
0007   000033 TMAX
0012 R 000074 VISCA
0011   000463 VISGAS
0014   000017 WIPE
0012 R 000076 WTHA
0013   000006 WTMP
0011   000634 XK
0013   000010 XKP
```

```
00101         SUBROUTINE GPOLY2                                                GPOLY   1
00103         COMMON  /COMP/ DS(15),N,NA1,NB1,NC,NCAB,NCFL,NEXT,NEXV,NK,      GPOLY   2
00103        1  NKEX,NKS,NKT,NLFL,NP,NPASS,NPF,NPFT(6),NQ,NS,NSF,NSFT(6),     GPOLY   3
00103        2  NSTR(18),NSUBR,NV,NVT,Y(15)                                    GPOLY   4
00104         COMMON  /ECLST1/  KCHOUT,KPRNT,KPTINV(4),KWIT,KWIT1,KWIT2,
00104        1  KWIT3,KWIT4,NUFF
00105         COMMON  /RARRAY/  IMAXR,R(1)                                     GPOLY   5
00106         COMMON  /KANDV/ K                                                GPOLY   6
00107         COMMON  /MISC/  DTIME,GRAV,KFLSYS,KOUTPT,KPDROP,KSYPAS,KTRANS,   GPOLY   7
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00107   10*          1  LPSUM(5),MAXCI,MAXLP,MAXSLP,MAXSSI,NCOMPS,NEWDT,NLAST,NPASPD,    GPOLY  8
00107   11*          2  MINSSI,PGMIN,PLMIN,START,STEADY,TIME,TIMEMX,TMAX,TMIN,WTMAX      GPOLY  9
00110   12*           COMMON  /CASE/ NCASE,NRSCS                                         GPOLY 10
00111   13*           COMMON  /PROPTY/  CPD,CP(99),CPCONL,CPCONV,CPCO2,CPDIL,CPOXY,CPTC  GPOLY 11
00111   14*          1  GAMGAS,RHOD,RHO(99),VISCD,VISC(99),VISGAS,WTMD,WTM(99),WTMCON,   GPOLY 12
00111   15*          2  WTMDIL,WTMTC,XKD,XK(99),XKGAS,XKLIQ,VISLIQ                      GPOLY 13
00112   16*           COMMON  /SOURCE/  A(19),B(19),CPA,CPB,IA1,IB1,NA,NB,NPFS,NPFST(6), GPOLY 14
00112   17*          1  NSFS,NSFST(6),RHOA,RHOB,VISCA,VISCB,WTMA,WTMB,XKA,XKB            GPOLY 15
00113   18*           COMMON  /RPROP/ CPP,CPS,RHOP,RHOS,VISCP,VISCS,WTMP,WTMS,XKP,XKS
00114   19*           COMMON /APPLNC/ NPHASE,LPHASE,NVCD,NSHWR,NJON,WCLO,WDIS,WSHWR
00114   20*          *, WSHRT,NSHRT,NSHFLO,TSHWR,NREF,HX60,HX70,WIPE,WWIPE
00115   21*           COMMON /APPL2/ BIC,B13,B16,B18,D8,D12,D15,D20,NSHSUB,BTIME,LSHR,
00115   22*          *  STR2,STR6,STR7,STR51,STR72,STR73,STR77,STR88,STR25,STR29,STR31,
00115   23*          *  KST16,STR21,LSHSUB
00116   24*           COMMON /POW/ POWER                                                 GPOLY 16
00117   25*           LOGICAL POWER                                                      GPOLY 17
00120   26*           DIMENSION V(1),K(1)                                                GPOLY 18
00121   27*           EQUIVALENCE (V,K)                                                  GPOLY 19
00122   28*           LOGICAL  STEADY                                                    GPOLY 20
00123   29*           DTH=DTIME/3600.
00124   30*           IF (N.GT.48) GO TO 10
00126   31*           IF (N .EQ.  3) GO TO 300
00130   32*           IF (N .EQ.  6) GO TO 600
00132   33*           IF (N .EQ. 16) GO TO 1600
00134   34*           IF (N .EQ. 20) GO TO 2000
00136   35*           IF (N .EQ. 21) GO TO 2100
00140   36*           IF (N .EQ. 22) GO TO 2200
00142   37*           IF (N .EQ. 23) GO TO 2300
00144   38*           IF (N .EQ. 25) GO TO 2500
00146   39*           IF (N .EQ. 27) GO TO 2700
00150   40*           IF (N .EQ. 30) GO TO 3000
00152   41*           IF (N .EQ. 32) GO TO 3200
00154   42*           IF (N .EQ. 43) GO TO 4300
00156   43*           IF (N .EQ. 48) GO TO 4800
00160   44*           RETURN
00161   45*       10  IF (N .EQ. 49) GO TO 4900
00163   46*           IF (N .EQ. 50) GO TO 5000
00165   47*           IF (N .EQ. 51) GO TO 5100
00167   48*           IF (N .EQ. 58) GO TO 5800
00171   49*           IF (N .EQ. 60) GO TO 6000
00173   50*           IF (N .EQ. 62) GO TO 6200
00175   51*           IF (N .EQ. 66) GO TO 6600
00177   52*           IF (N .EQ. 68) GO TO 6800
00201   53*           IF (N .EQ. 70) GO TO 7000
00203   54*           IF (N .EQ. 77) GO TO 7700
00205   55*           IF (N .EQ. 79) GO TO 7900
00207   56*           IF (N .EQ. 91) GO TO 9100
00211   57*           IF (N .EQ. 97) GO TO 9700
00213   58*           IF (N .EQ.121) GO TO 12100
00215   59*           IF (N .EQ. 125) GO TO 12500
00217   60*           IF (N .EQ. 126) GO TO 12600
00221   61*           RETURN
00221   62*     C        COMPUTE SHOWER STALL PLOTTING PARAMETERS
00222   63*       300 IF (R(1).GT..0001) GO TO 330
00224   64*           R(90)=0.
00225   65*           R(91)=0.
00226   66*           R(92)=0.
00227   67*           RETURN
```

```
00230    68*        330 R(90)=A(4)*A(12)/ (A(5)+A(6)) *A(9)/44.*760./14.7
00231    69*             R(91)=A(4)*A(10)/ (A(5)+A(6)) *A(9)/32.
00232    70*             CALL RH(R(1),DUM,R(92),N)
00233    71*             RETURN
00233    72*       C        COMPUTE CLOTHES WASHER/DRYER PLOTTING PARAMETERS
00234    73*         600 IF (NPHASE .EQ. 7) GO TO 630
00236    74*             R(112)=0.
00237    75*             R(113)=0.
00240    76*             R(114)=0.
00241    77*             R(115)=0.
00242    78*             RETURN
00243    79*         630 IF (K(NKS+3) .EQ. 6) RETURN
00245    80*             R(112)=R(25)-B(6)
00246    81*             CALL RH(B( 1),DUM,R(113),6)
00247    82*             CALL RH(R(20),DUM,R(114),6)
00250    83*             R(115)=R(96)
00251    84*             RETURN
00251    85*       C        SHOWER CIRCULATION FAN PRESSURE RISE
00252    86*        1600 R(4)=14.8
00253    87*             IF (NSHWR.GT.0) RETURN
00255    88*             IF (R(1) .LT. 1.) RETURN
00257    89*             DO 1620 L=1,14
00262    90*         1620 R(L)=0.
00264    91*             RETURN
00264    92*       C        SHOWER WATER SEPARATOR
00265    93*         2000 IF (NSHWR.LT.0) RETURN
00267    94*             R(1)=R(26)
00270    95*             R(26)=0.
00271    96*             R(2)=R(21)
00272    97*             R(3)=R(22)
00273    98*             R(4)=R(23)
00274    99*             CALL PROP(R(1),NPF,NPFT,CPA,WTMA,RHOA,VISCA,XKA)
00274   100*       C        PRINT OUT INTERMEDIATE SHOWER PARAMETERS
00275   101*             B1=(VV(3,53) +.248*VV(71,1)*(VV(18,21)-VV(71,21)) 73.412
00276   102*             B2=(VV(18,25) -VV(71,6))*.454
00277   103*             B3=(VV(18,31)-VV(71,12))*.454
00300   104*             B4=(VV(71,10)-VV(18,29))*.454
00301   105*             B5=VV(3,2)
00302   106*             B6=(VV(3,6)-VV(19,6))*.454
00303   107*             B7=(VV(19,10)-VV(3,10))*.454
00304   108*             B8=(VV(3,12)-VV(19,12))*.454
00305   109*             B9=VV(19,6)
00306   110*             B5=R(25)
00307   111*             B9=R(29)
00310   112*             B11=R(31)
00311   113*             IF (NSHSUB.EQ.0) WRITE (6,9759)
00314   114*             WRITE (6,9760) B1,B2,B3,B4,B5,B6,B7,B8,B9,B11
00314   115*       C        CHECK FOR CONVERGENCE OF SHOWER LOOP
00330   116*             NSHSUB=NSHSUB+1
00331   117*             IF (NSHSUB.EQ.1) GO TO 2050
00333   118*             IF (NSHSUB.EQ.6) KCHOUT=0
00335   119*             DELTEM=ABS(1.-STR21/R(21))
00336   120*             DELH2O=ABS(1.-STR25/R(25))
00337   121*             DELO2=ABS(1.-STR29/R(29))
00340   122*             DELCO2=ABS(1.-STR31/R(31))
00341   123*             EQCRIT=AMAX1(DELO2,DELCO2,DELH2O,DELTEM)
00342   124*             IF (EQCRIT.GT..001.AND. NSHSUB.LT. 30)  GO TO 2050
00344   125*             NEXT=21
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00345   126*          RETURN
00345   127*    C           RE-ITERATE SHOWER LOOP
00345   128*    C
00346   129*     2050 NEXT=15
00346   130*    C           ADJUST SHOWER LOOP RETURN FLOW
00347   131*          DUM=1./ (1.-VV(17,65))/ VV(18,65)
00350   132*          DUM2=DUM-1.
00351   133*          R25=   DUM2*VV(71, 6) + DUM*(VV(24,6)-VV(19, 6)-VV(17,25))
00352   134*          R29=   DUM2*VV(71,10) + DUM*(VV(3,10)-VV(19,10))
00353   135*          R30=   DUM2*VV(71,11)
00354   136*          R31=   DUM2*VV(71,12) + DUM*(VV(3,12)-VV(19,12))
00355   137*          R(25)=R(25)+.3*(R25-R(25))
00356   138*          R(29)=R(29)+.3*(R29-R(29))
00357   139*          R(30)=R30
00360   140*          R(31)=R(31)+.3*(R31-R(31))
00361   141*          R(24)=R(29) + R(30) + R(31)
00362   142*          DUM=PSAT(R(21))
00363   143*          R(28)=R(24)/(R(29)/32.+R(30)/WTMDIL+R(31)/44.)
00364   144*          DUM2=R(24)*WTMCON/R(28)*DUM/(R(23)-DUM)
00365   145*          IF (R(25).GT.DUM2) R(25)=DUM2
00367   146*          R(20)=R(24)+R(25)
00370   147*          CALL PROP(R(20),NSF,NSFT,CPR,WTMB,RHOB,VISCB,XKB)
00370   148*    C           STORE WATER SEPARATOR OUTLET CONDITIONS FOR LATER CONVERGENCE TEST
00371   149*          STR21=R(21)
00372   150*          STR25=R(25)
00373   151*          STR29=R(29)
00374   152*          STR31=R(31)
00374   153*    C           RE-INITIALIZE SHOWER STALL CONDITIONS FOR NEXT LOOP ITERATION
00375   154*          CALL SV(STR51,3,51)
00376   155*          CALL SV(STR72,3,72)
00377   156*          CALL SV(STR73,3,73)
00400   157*          CALL SV(STR77,3,77)
00401   158*          CALL SV(STR88,3,88)
00402   159*          CALL SV(STR2,3,2)
00403   160*          CALL SV(STR6,3,6)
00404   161*          CALL SV(STR7,3,7)
00405   162*          CALL SK(KST16,3,16)
00406   163*          RETURN
00406   164*    C           SHOWER OUTLET AIR FILTER
00407   165*     2100 R(4)=R(3)-2.**.03613
00410   166*          RETURN
00410   167*    C           SKIP SHOWER AFTER FINAL USE
00411   168*     2200 NEXT=23
00412   169*          IF (TIME.GT.10.75*3600.) RETURN
00414   170*          IF (KSYPAS.LT.3) LSHSUB=0
00416   171*          NEXT=15
00417   172*          IF (NSHWR.LT.0) RETURN
00421   173*          IF (LSHSUB.NE.0) GO TO 2250
00423   174*          TIMEH=TIME/3600.
00424   175*          LSHR=3
00425   176*          BTIME=DTIME
00426   177*          DTIME=DTIME/FLOAT(LSHR)
00426   178*    C           ESTIMATE SHOWER AIR LOOP INITIAL CONDITION
00427   179*          IF (KK(3,16).GE.0) GO TO 2250
00431   180*          GTOT=42.6*( 1./(1.-VV(17,65))/ VV(18,65)-1.)
00432   181*          DUM=GTOT/VV(70,103)
00433   182*          G25=VV(70,108)*DUM+2.
00434   183*          G29=VV(70,112)*DUM
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00435   184*          G30=VV(70,113)*DUM
00436   185*          G31=VV(70,114)*DUM
00437   186*          CALL SV(75,
00440   187*          CALL SV(14.7,
00441   188*          CALL SV(14.7,
00442   189*          CALL SV(G29,G
00443   190*          CALL SV(G25,20,25)
00444   191*          CALL SV(G29,20,29)
00445   192*          CALL SV(G30,20,30)
00446   193*          CALL SV(G31,20,31)
00447   194*    2250  CONTINUE
00447   195*    C           STORE SHOWER STALL INITIAL PARAMETERS
00450   196*          STR51=VV(3,51)
00451   197*          STR72=VV(3,72)
00452   198*          STR73=VV(3,73)
00453   199*          STR77=VV(3,77)
00454   200*          STR88=VV(3,88)
00455   201*          STR2=VV(3,2)
00456   202*          STR6=VV(3,6)
00457   203*          STR7=VV(3,7)
00460   204*          KST16=KK(3,16)
00461   205*          NSHSUB=0
00462   206*          RETURN
00462   207*    C           SHOWER WATER PUMP PRESSURE RISE
00463   208*     2300 IF (NSHWR.LT.0) RETURN
00465   209*          R(4)=R(3)+20.
00466   210*          KCHOUT=0
00467   211*          LSHSUB=LSHSUB+1
00470   212*          IF (LSHSUB.LT.LSHR) GO TO 2350
00472   213*          LSHSUB=0
00473   214*          DTIME=STIME
00474   215*          RETURN
00475   216*     2350 NEXT=22
00476   217*          RETURN
00476   218*    C           CLOTHES DRYER FAN PRESSURE RISE
00477   219*     2500 R(4)=R(4)+4.**.03613
00500   220*          RETURN
00500   221*    C           CLOTHES DRYER AIR FILTER PRESSURE DROP
00501   222*     2700 R(4)=R(4)-1.5**.03613
00502   223*          RETURN
00502   224*    C           CLOTHES WASHER WATER FILTER PRESSURE DROP
00503   225*     3000 R(4)=R(4)-.3
00504   226*          IF ( (NPHASE-3)*(NPHASE-6) .EQ. 0) R(1)=0.
00506   227*          RETURN
00506   228*    C           CLOTHES WASHER WATER PUMP PRESSURE RISE
00507   229*     3200 R(4)=R(4)+2.8
00510   230*          IF (NPHASE.EQ.2 .OR. NPHASE.EQ.5) R(1)=4000.
00512   231*          IF (NPHASE*(NPHASE-7).EQ.0) R(1)=0.
00514   232*          RETURN
00514   233*    C           DISHWASHER WATER PUMP FLOW
00515   234*     4300 R(4)=R(4)+2.8
00516   235*          IF (LPHASE.EQ.2 .OR. LPHASE.EQ.5) R(1)=4000.
00520   236*          IF (LPHASE*(LPHASE-7).EQ. 0) R(1)=0.
00522   237*          RETURN
00522   238*    C           DISHWASHER WATER FILTER PRESSURE DROP
00523   239*     4800 R(4)=R(3)-0.19
00524   240*          IF (LPHASE.EQ.3 .OR. LPHASE.EQ.6) R(1)=0.
00526   241*          RETURN
```

```
00526    242*      C          COMPUTE DISH WASHER/DRYER PLOTTING PARAMETERS
00527    243*       4900 IF (LPHASE .EQ. 7) GO TO 4930
00531    244*            R(112)=0.
00532    245*            R(113)=0.
00533    246*            R(114)=0.
00534    247*            R(115)=0.
00535    248*            RETURN
00536    249*       4930 IF (K(NKS+3) .EQ. 6) RETURN
00540    250*            R(112)=R(25)-B(6)
00541    251*            CALL RH(B( 1),DUM,R(113),49)
00542    252*            CALL RH(R(20),DUM,R(114),49)
00543    253*            R(115)=R(96)
00544    254*            RETURN
00544    255*      C          DISH DRYER AIR FILTER PRESSURE DROP
00545    256*       5000 R(4)=R(3)-2.5*.03613
00546    257*            RETURN
00546    258*      C          DISH DRYER FAN PRESSURE RISE
00547    259*       5100 R(4)=R(3)+6.7*.03613
00550    260*            RETURN
00551    261*       5800 R(4)=14.7
00552    262*            RETURN
00552    263*      C          SET GALLEY AIR OUTLET FLOWRATE TO APPLIANCES, H/X
00553    264*       6000 DUM=13.*64.
00554    265*            IF (LPHASE.EQ.7) DUM=DUM+38.
00556    266*            IF (R(2) .GT. 73.) HX60=9.
00560    267*            IF (R(2) .LT. 68.) HX60=-9.
00562    268*            IF (HX60..GT. 0.) DUM=DUM+4260.
00564    269*       6020 DUM2=DUM/ (R(107)+R(108))
00565    270*            R(6)=R(108)*DUM2
00566    271*            R(10)=R(112)*DUM2
00567    272*            R(11)=R(113)*DUM2
00570    273*            R(12)=R(114)*DUM2
00571    274*            R(13)=R(115)*DUM2
00572    275*            R(14)=R(116)*DUM2
00573    276*            R(1)=DUM
00574    277*            R(4)=14.7
00575    278*            R(5)=DUM-R(6)
00576    279*            RETURN
00576    280*      C          COMPUTE FREEZER LOCKER HEAT GAIN FOR PLOTTING
00577    281*       6200 R(132)=-R(53)*13.
00600    282*            R(105)=R(105)*13.*DTIME/3600.
00601    283*            R(1)=R(1)*13.
00602    284*            DO 6210 L=5,14
00605    285*       6210 IF ( (L-8)*(L-9) .NE. 0) R(L)=R(L)*13.
00610    286*            RETURN
00611    287*       6600 R(4)=14.7
00612    288*            RETURN
00613    289*       6800 R(4)=14.7
00614    290*            RETURN
00614    291*      C          SET HYGIENE AREA AIR OUTLET FLOWRATE TO APPLIANCES, H/X
00615    292*       7000 DUM=0.
00616    293*            IF (R(2) .GT. 73.) HX70=9.
00620    294*            IF (R(2) .LT. 68.) HX70=-9.
00622    295*            IF (HX70 .GT. 0.) DUM=4260.
00624    296*            IF (WWIPE .GT. 1.) DUM=DUM+149.1
00626    297*            IF (NSHWR.GT.0) DUM=DUM+42.4
00630    298*            IF (NJON.EQ.1) DUM=DUM+85.2
00632    299*            IF (NJON.EQ.3) DUM=DUM+149.1
```

```
00634   300*          IF (NPHASE.EQ.7) DUM=DUM+12.
00636   301*          GO TO 6020
00637   302*     7700 R(4)=14.7
00640   303*          IF (R(2).LT. .1) R(2)=VV(70,2)
00642   304*          RETURN
00642   305*        C    FLOW/THERMAL BALANCE - WIPE WETTING UNIT
00643   306*     7900 IF (WWIPE .LT. 1.) RETURN
00645   307*          R(65)=R(21)
00646   308*          R(21)=105.
00647   309*          DUM=R(5)*R(8)*R(2) +.44*R(6)*R(2) +CPB*R(20)*R(21) -.560*1062.
00647   310*         * +84.*3.412
00650   311*          R(2)=DUM/ (R(5)*R(8) +.44*R(6) +CPB*R(20))
00651   312*          R(21)=R(2)
00652   313*          R(20)=R(20)-.560
00653   314*          R(6)=R(6)+.560
00654   315*          R(1)=R(1)+.560
00655   316*          HMIX=R(5)*R(8)*R(2)+R(6)*HG(R(2))+R(7)*HF(R(2))
00656   317*          CALL HBALNC(HMIX,R,NSTR,NCFL,WLCOND)
00657   318*          RETURN
00657   319*        C    WASH WATER PUMP HEAD
00660   320*     9100 R(4)=940.
00661   321*          RETURN
00661   322*        C    COMPUTE REFRIGERATOR LOCKER HEAT GAIN FOR PLOTTING
00662   323*     9700 R(123)=-3.*R(53)
00663   324*          R(105)=(R(105)*DTIME/3600.) *3.
00664   325*          R(1)=R(1)*3.
00665   326*          IF (NPASS.GT.0) GO TO 9750
00667   327*          B10=0.
00670   328*          B13=0.
00671   329*          B16=0.
00672   330*          B18=0.
00673   331*          D8=0.
00674   332*          D12=0.
00675   333*          D15=0.
00676   334*          D20=0.
00677   335*     9750 B1=TIME/3600.
00700   336*          B2=3.*R(53)
00701   337*          B3=R(1)*CPA*(R(2)-A(2))
00702   338*          B4=13.*VV(62,53)
00703   339*          B5=VV(62,1)*.248*(VV(62,2)-VV(61,2))
00704   340*          B6=VV(95,53)
00705   341*          B7=VV(3,53)
00706   342*          B8=VV(71,1)*.248*(VV(18,2)-VV(71,2))
00707   343*          B9=VV(22,1)*(VV(23,2)-VV(22,2))
00710   344*          B10=B10+(VV(18,25)-VV(71,6))*DTIME/3600.
00711   345*          B11=VV(6,53)+VV(35,53)
00712   346*          B12=VV(73,1)*.248*(VV(25,2)-VV(73,2))
00713   347*          B13=B13+(VV(25,6)-VV(73,6))*DTIME/3600.
00714   348*          B14=VV(49,53)+VV(41,53)
00715   349*          B15=VV(63,1)*.248*(VV(51,2)-VV(63,2))
00716   350*          B16=B16+(VV(51,6)-VV(63,6))*DTIME/3600.
00717   351*          B17=VV(121,53)
00720   352*          B18=B18+(VV(126,6)-VV(72,6))*DTIME/3600.
00721   353*          WRITE (6,9759)
00723   354*     9759 FORMAT (/)
00724   355*          WRITE (6,9760) B1,B2,B3,B4,B5,B6,B7,B8,B9,B10,B11,B12,B13,B14,
00724   356*         *  B15,B16,B17,B18
00750   357*     9760 FORMAT (1X, 5G12.5, 5X, 5G12.5)
```

```
      D1=3.*R(53)/3.412
      D2=3.*R(65)/3.412
      D3=(B4+B5)/3.412
      D4=B6/3.412
      D5=(B7+B8)/3.412
      D6=    (VV(14, 6)-VV(71,6))*.454
      D7=    (VV(14,12)-VV(71,12))*.454
      D22=    (VV(71,10)-VV(14,10))*.454
      D8=D8+VV(86,1)*DTH*.454
      D9=VV(86,1)*(VV(86,2)-105.)/3.412
      D10=(B11+B12)/3.412
      D11=(VV(25,6)-VV(73,6))*.454
      D12=D12+VV(87,1)*DTH*.454
      D13=(B14+B15)/3.412
      D14=(VV(51,6)-VV(63,6))*.454
      D15=D15+VV(87,20)*DTH*.454
      D16=(B17+VV(72,1)*.248*(VV(126,2)-VV(72,2)))/3.412
      D17=(VV(126,6)-VV(72,6))*.454
      D18=VV(78,20)*.248*(VV(79,2)-VV(78,21))/3.412
      D19=(VV(79,6)-VV(78,25))*.454
      D20=D20+VV(83,20)*DTH*.454
      D21=VV(83,20)*(VV(83,21)-105.)/3.412
      WRITE (6,9759)
      WRITE (6,9760) D1,D2,D3,D4,D5,D6,D7,D8,D9,D10,D11,D12,D13,D14,
     * D15,D16,D17,D18,D19,D20,D21,D22
      B1=VV(79,20)
      B2=VV(23, 1)
      B3=VV(34, 1)
      B4=VV( 45, 1)
      B5=VV( 1, 1)
      B6=VV( 3, 7)
      B7=VV( 6, 1)
      B8=VV(49, 1)
      WRITE (6,9759)
      WRITE (6,9760) B1,B2,B3,B4,B5,B6,B7,B8
      RETURN
C        COMPUTE DRYJOHN PLOTTING PARAMETERS
12100 R(115)=(R(89)+R(90))/R(91)
      CALL RH(R(1),DUM,R( 97),N)
      RETURN
C        DRYJOHN URINAL WATER SEPARATOR
12500 IF (B(1) .LT. .001) RETURN
      R(1)=R(26)
      R(26)=0.
      R(20)=R(24)+R(25)
      R(3)=R(22)
      QLIQ=(40.+17.5)*3.412
      IF (R(1) .LT. .1) QLIQ=0.
      QAIR=(100.+17.5)*3.412 + (40.+17.5)*3.412 - QLIQ
      R(2)=R(21)+QLIQ/ (R(1)*CP(1))
      CPB=(R(24)*R(27)+R(25)*CPCONV)/(R(24)+R(25))
      R(21)=R(21)+QAIR/ (R(20)*CPB)
      R(4)=R(23)+12.
      R(23)=R(23)+15.*.03613
      CALL PROP(R(1),NPF,NPFT,CPA,WTMA,RHOA,VISCA,XKA)
      CALL PROP(R(20),NSF,NSFT,CPB,WTMB,RHOB,VISCB,XKB)
      RETURN
C        DRYJOHN OUTLET AIR FILTER PRESSURE DROP
12600 R(4)=R(3)-2.*.03613
      RETURN
      END                                                    GPOLY195

END OF COMPILATION:        NO DIAGNOSTICS.
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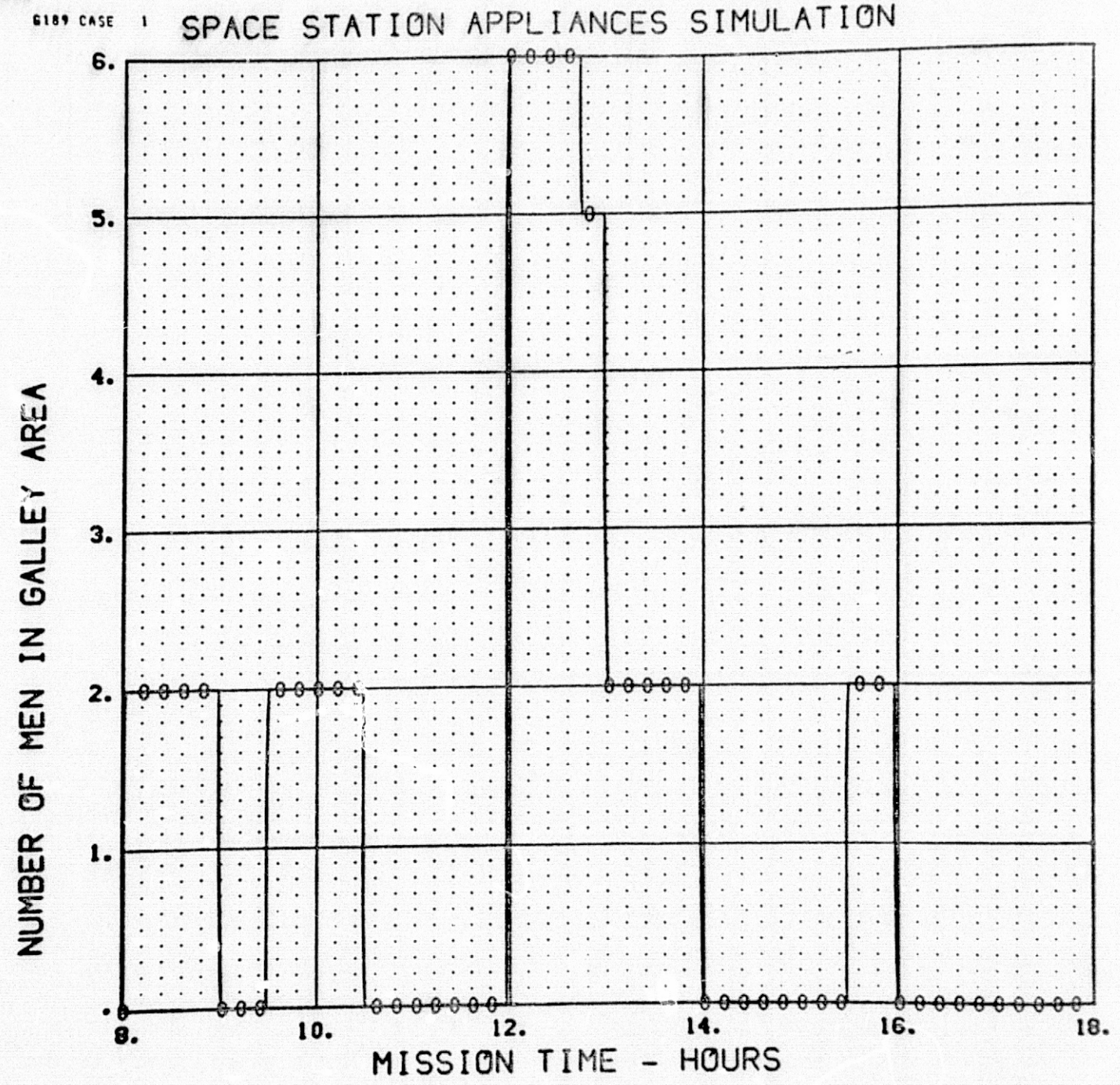
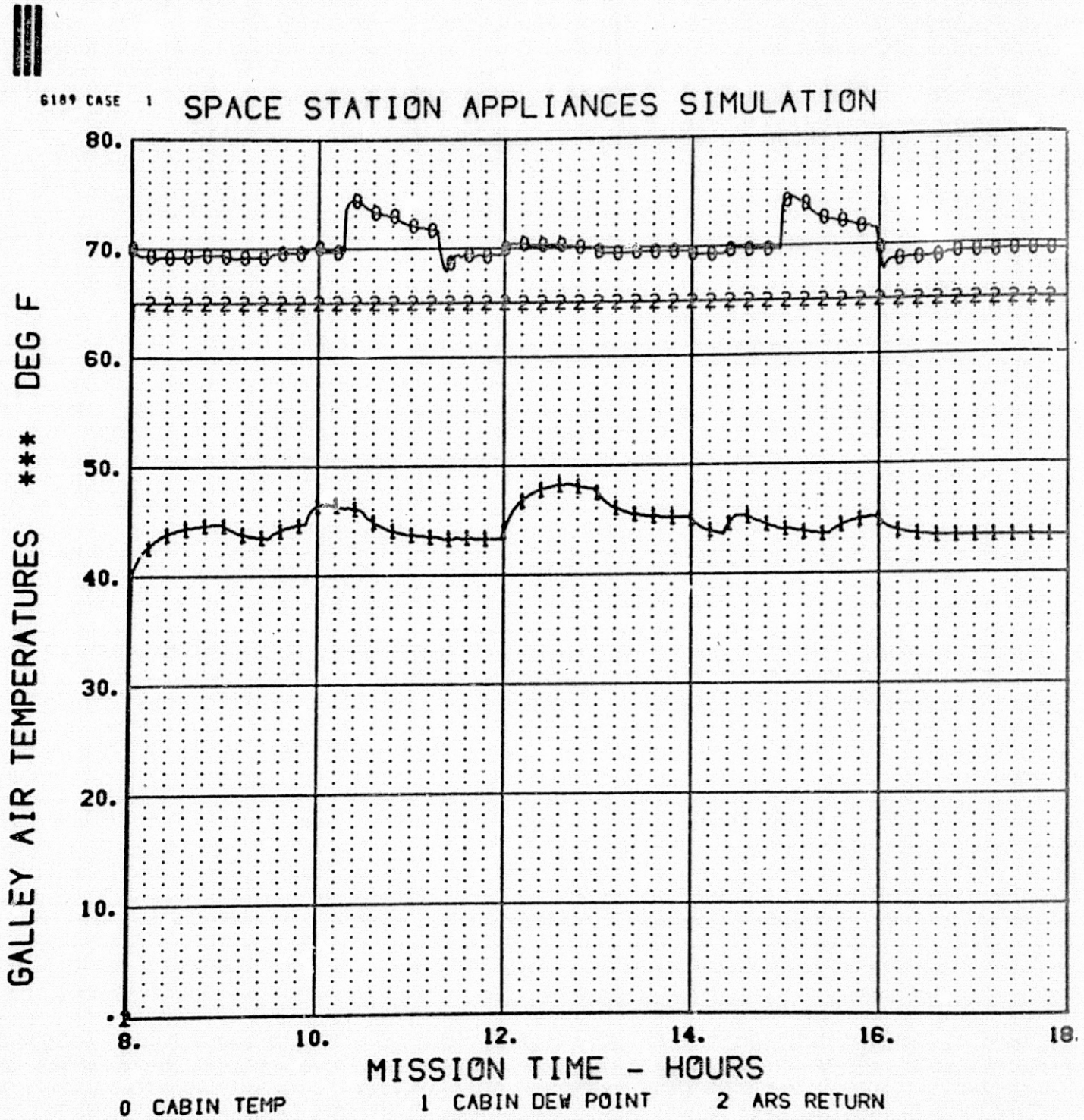
D2-118571-2A

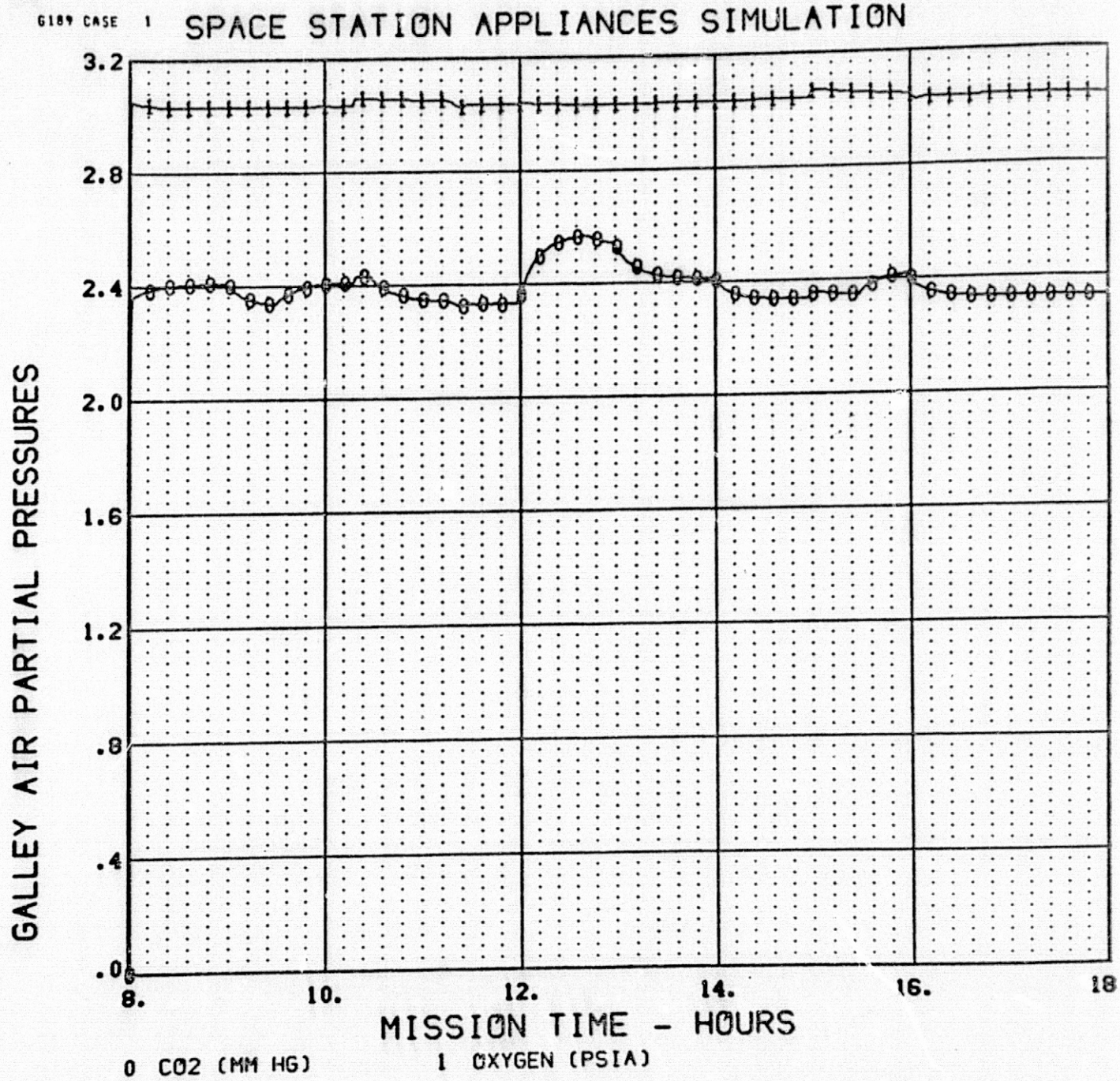
Revised 10-16-75

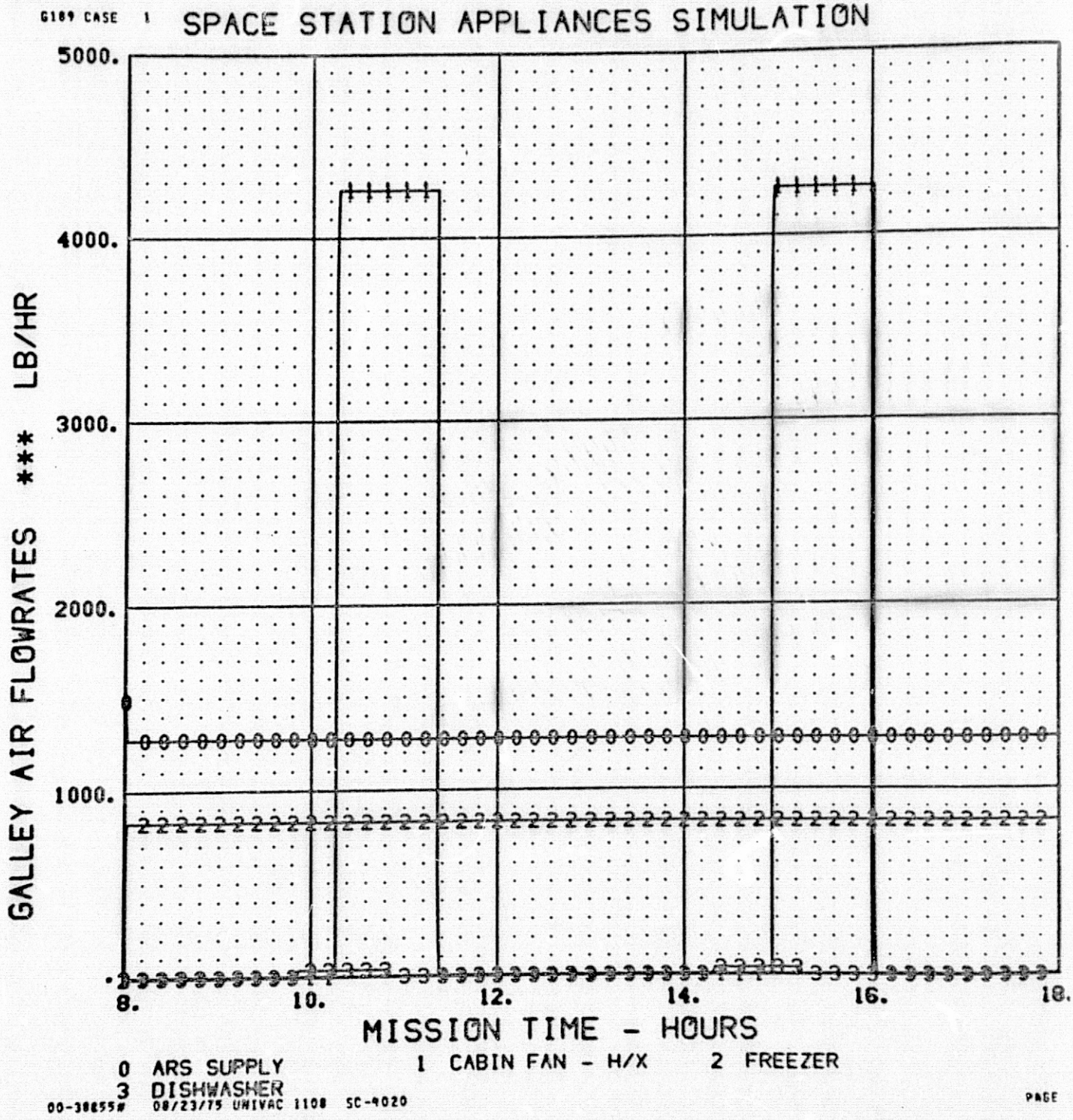
APPENDIX G

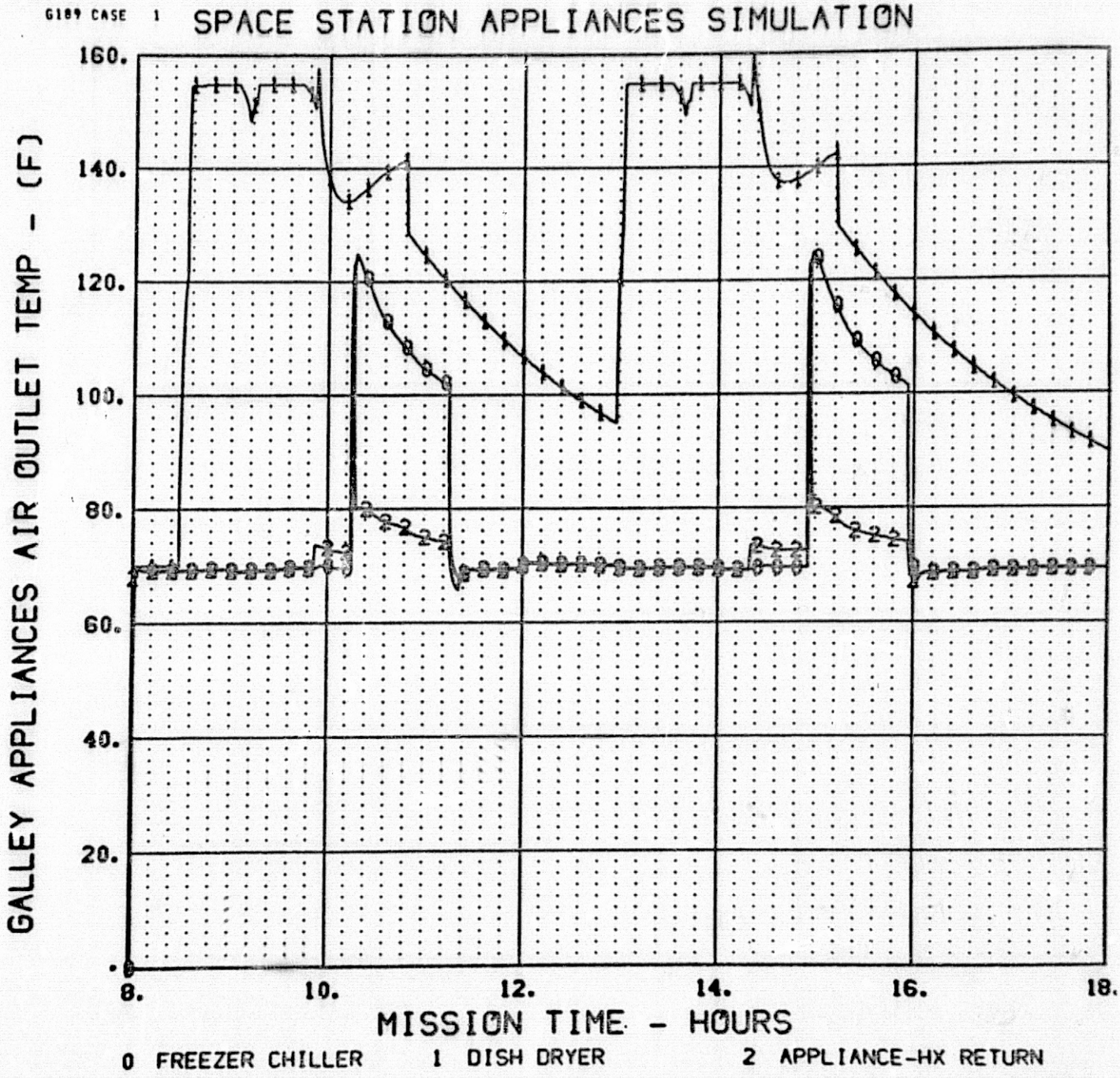
MODULAR SPACE STATION/APPLIANCES SIMULATION RESULTS

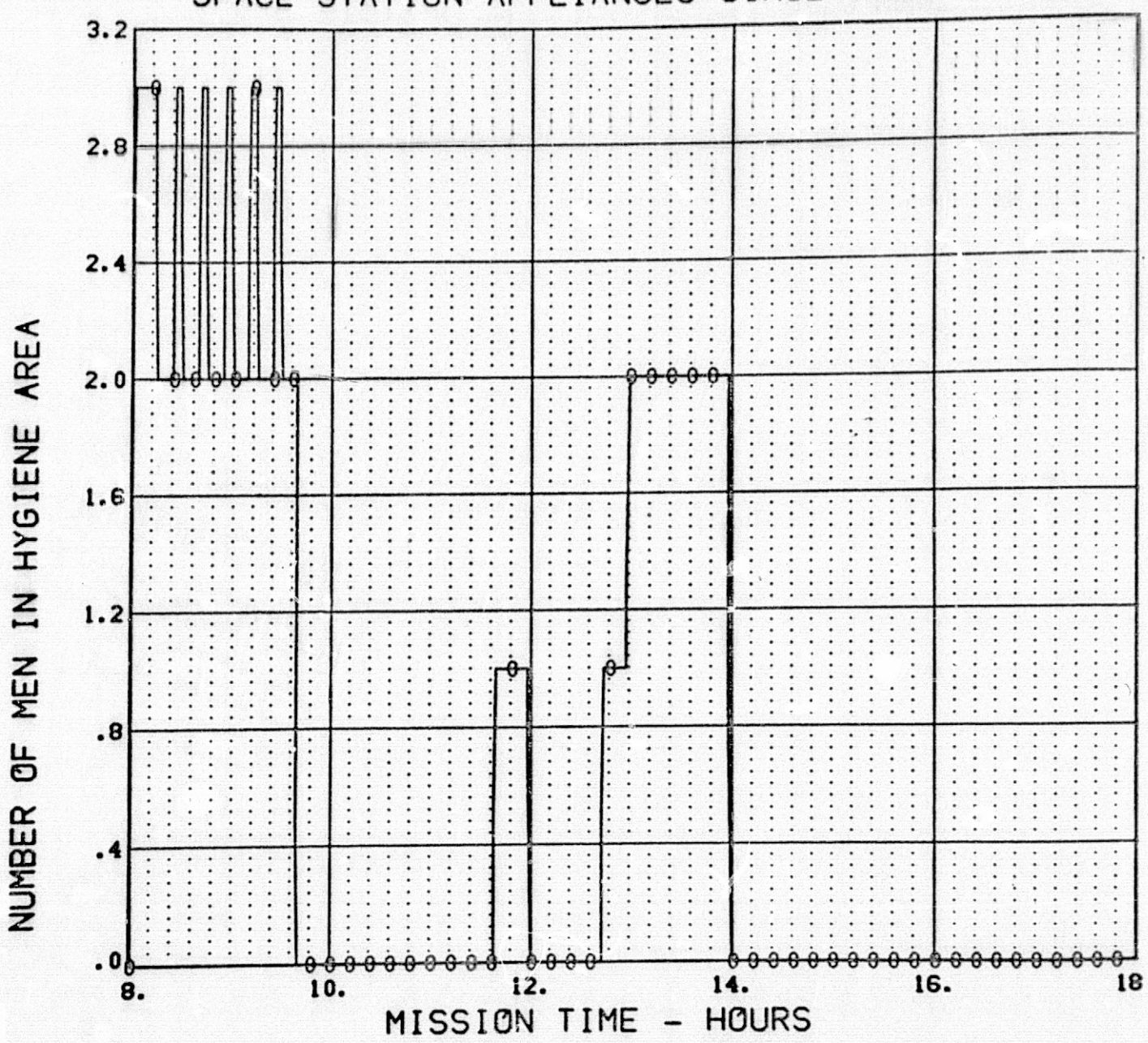

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
NUMBER OF MEN IN GALLEY AREA
6.
5.
4.
3.
2.
1.
0.
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
GALLEY AIR TEMPERATURES *** DEG F
80.
70.
60.
50.
40.
30.
20.
10.
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
0 CABIN TEMP
1 CABIN DEW POINT
2 ARS RETURN


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
GALLEY AIR PARTIAL PRESSURES
3.2
2.8
2.4
2.0
1.6
1.2
.8
.4
.0
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 CO2 (MM HG)
1 OXYGEN (PSIA)


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
5000.
4000.
3000.
2000.
1000.
GALLEY AIR FLOWRATES *** LB/HR
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
0 ARS SUPPLY
1 CABIN FAN - H/X
2 FREEZER
3 DISHWASHER
00-38655# 08/23/75 UNIVAC 1108 SC-4020
PAGE


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
GALLEY APPLIANCES AIR OUTLET TEMP - (F)
160.
140.
120.
100.
80.
60.
40.
20.
0.
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
0 FREEZER CHILLER
1 DISH DRYER
2 APPLIANCE-HX RETURN
00-37806# 08/23/75 UNIVAC 1108 SC-4020
PAGE 1

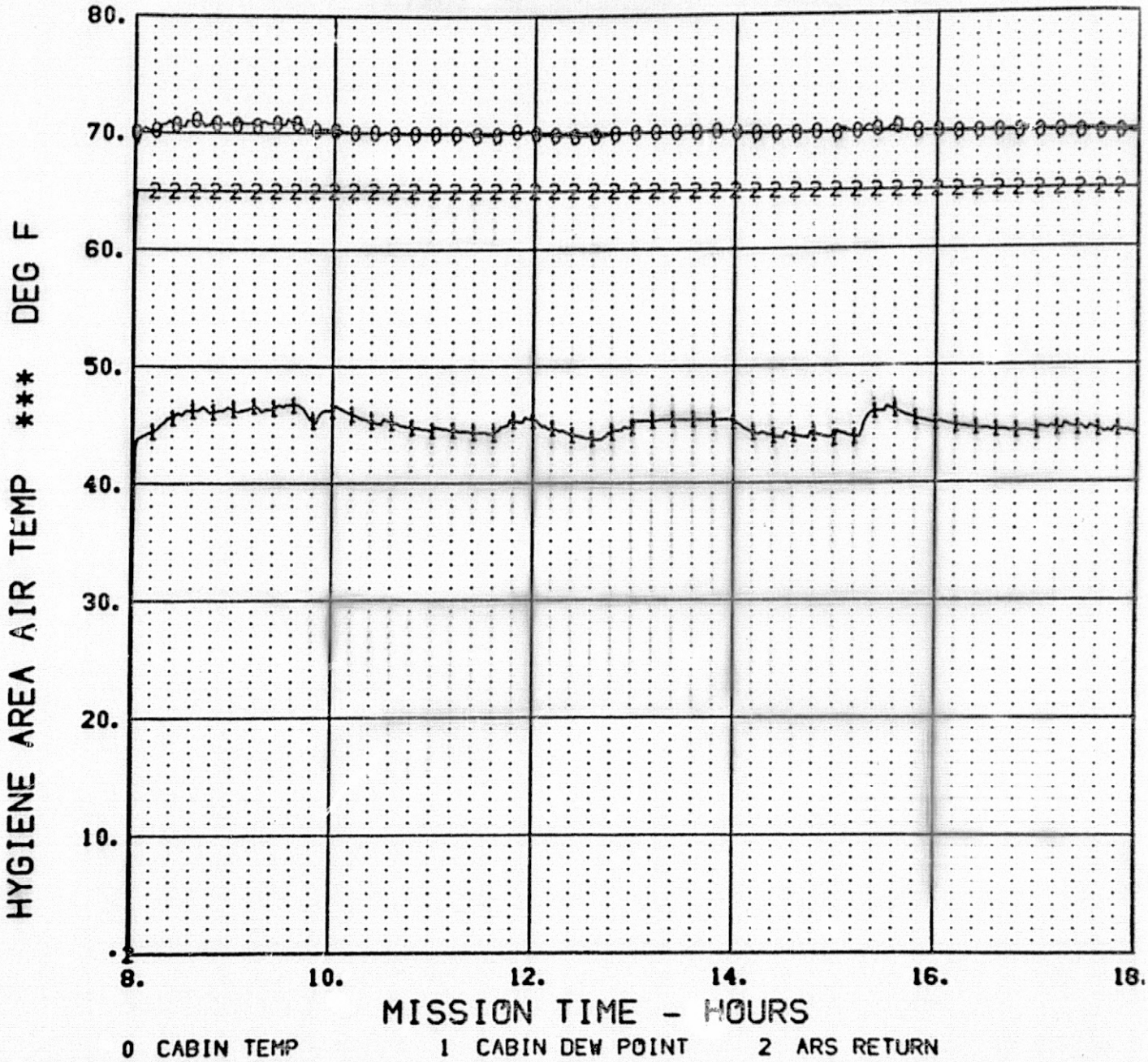


00-34804# 08/23/75 UNIVAC 1108 SC-4020

PAGE

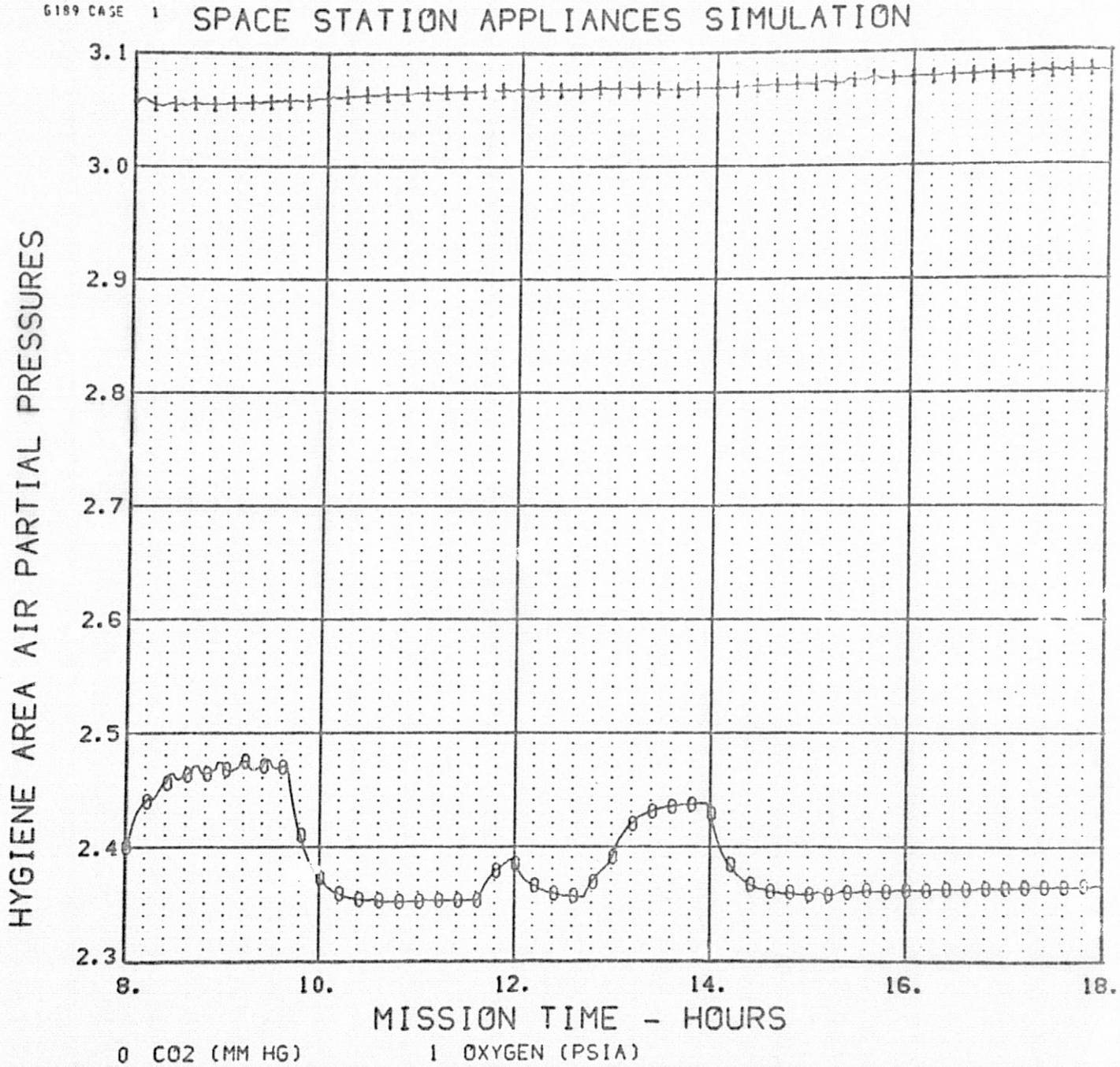
G189 CASE 1

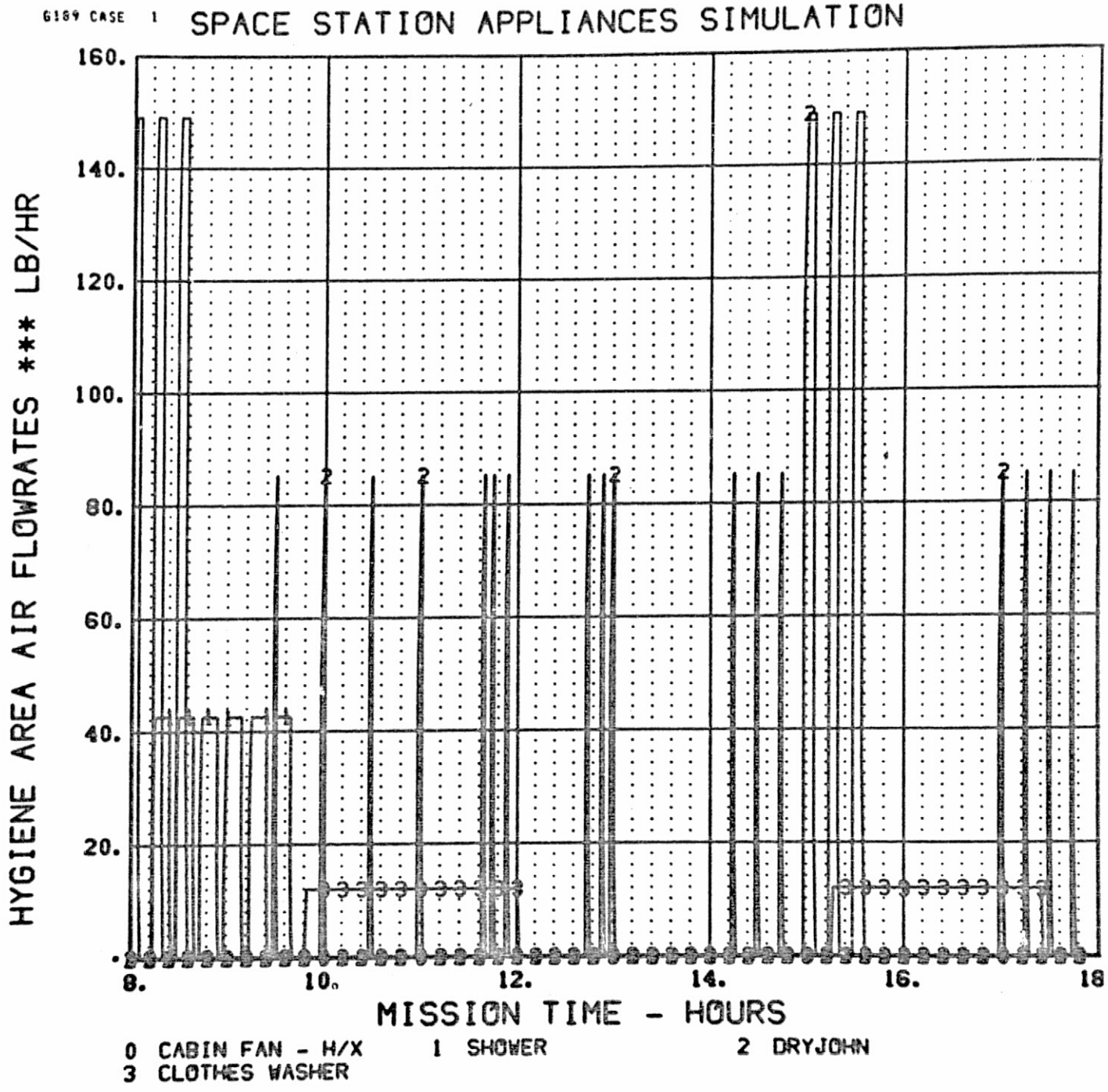
SPACE STATION APPLIANCES SIMULATION



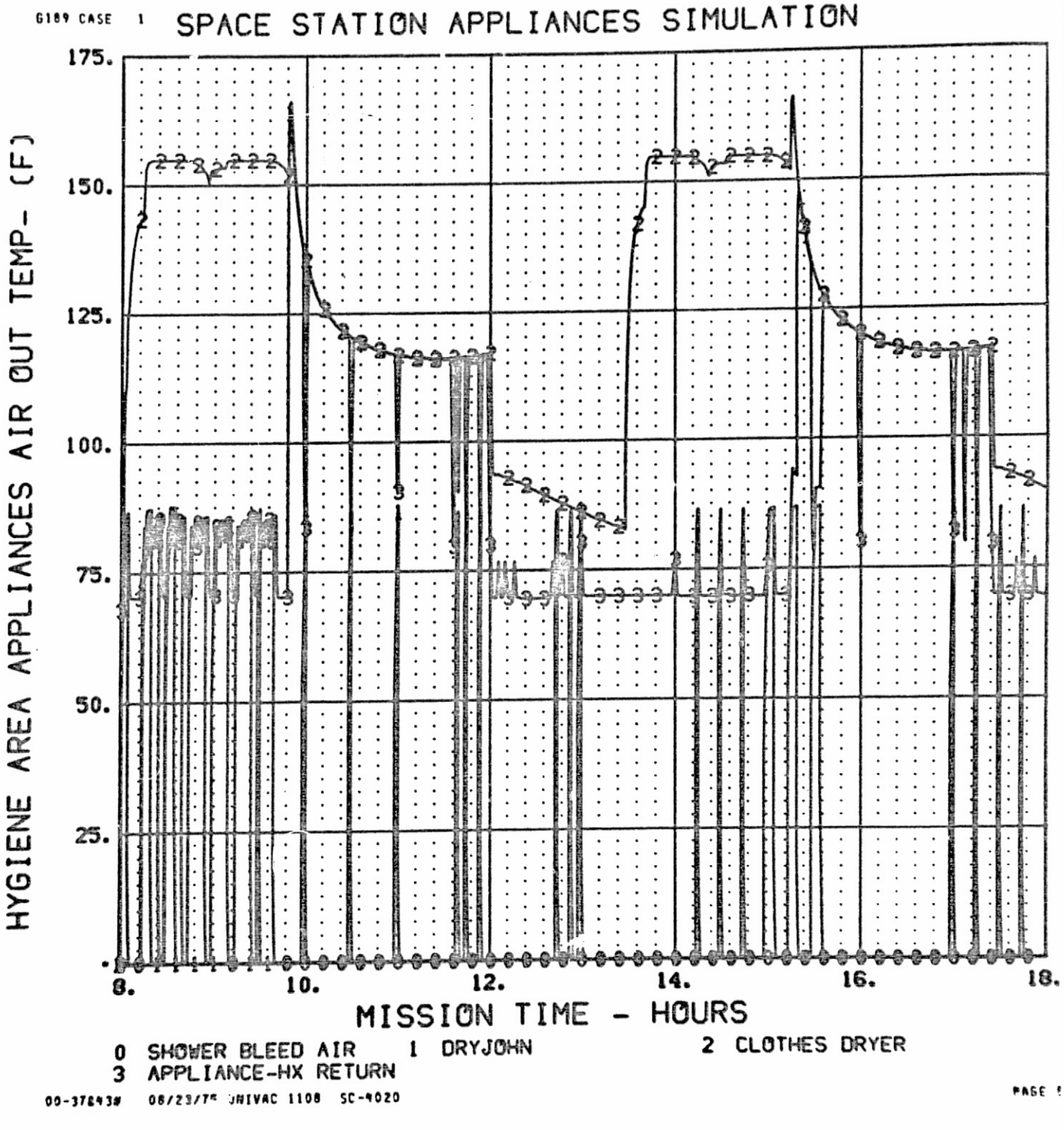
00-35617# 08/23/75 UNIVAC 1108 SC-4020

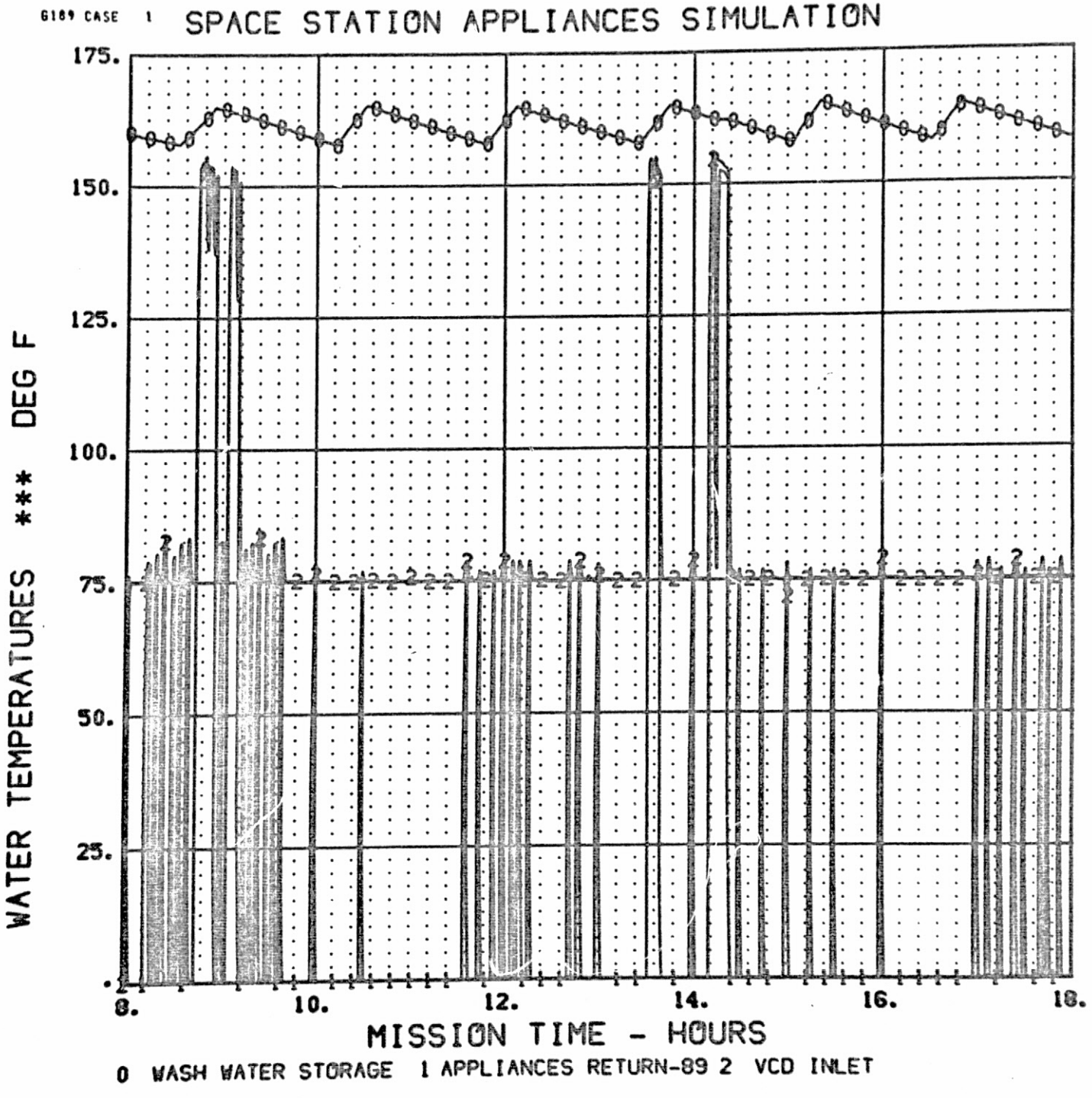
PAGE 1

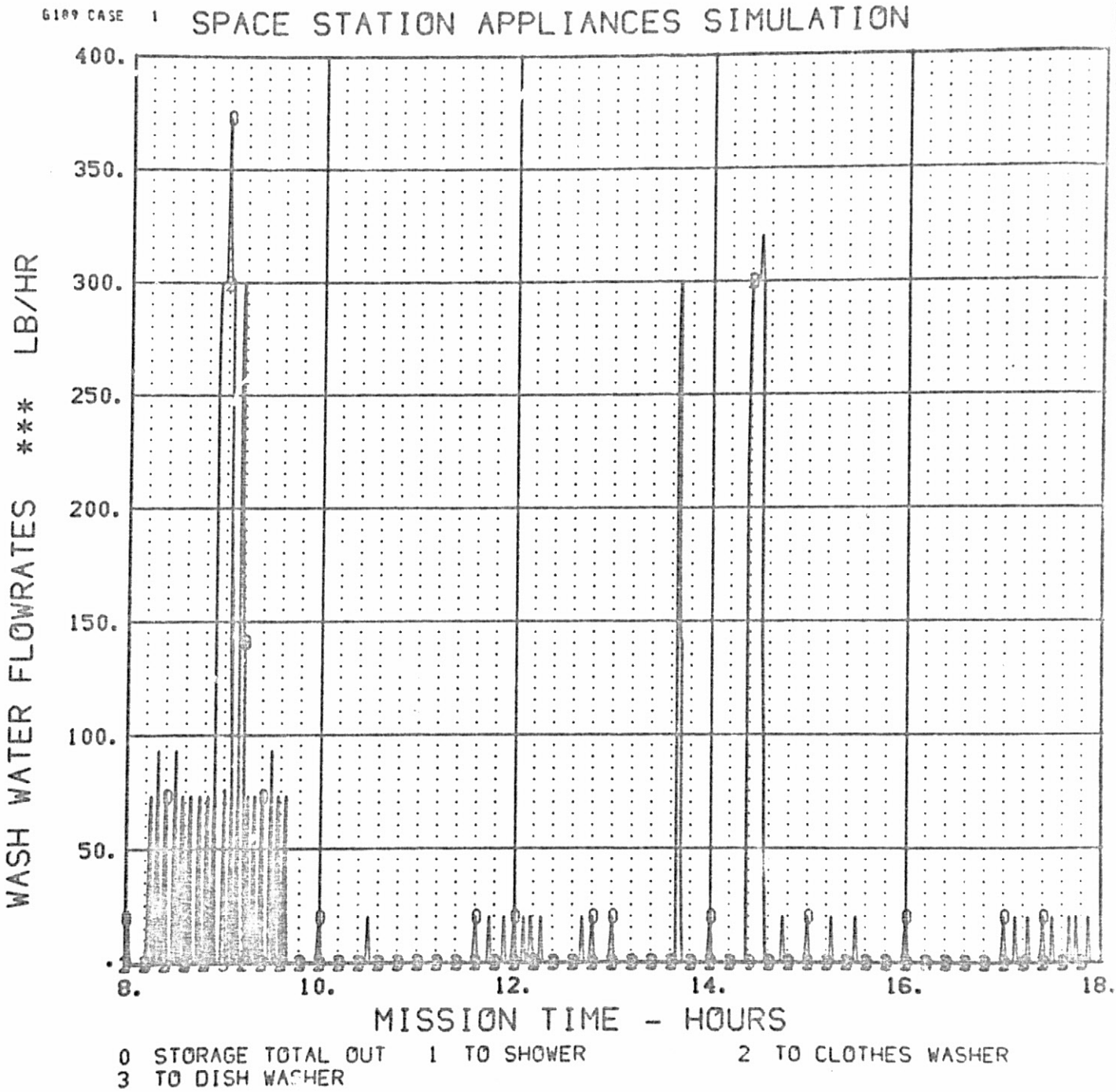

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
HYGIENE AREA AIR PARTIAL PRESSURES
3.1
3.0
2.9
2.8
2.7
2.6
2.5
2.4
2.3
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
0 CO2 (MM HG)
1 OXYGEN (PSIA)
22-30810# 09/25/75 UNIVAC 1108 SC-4020
PAGE 9.

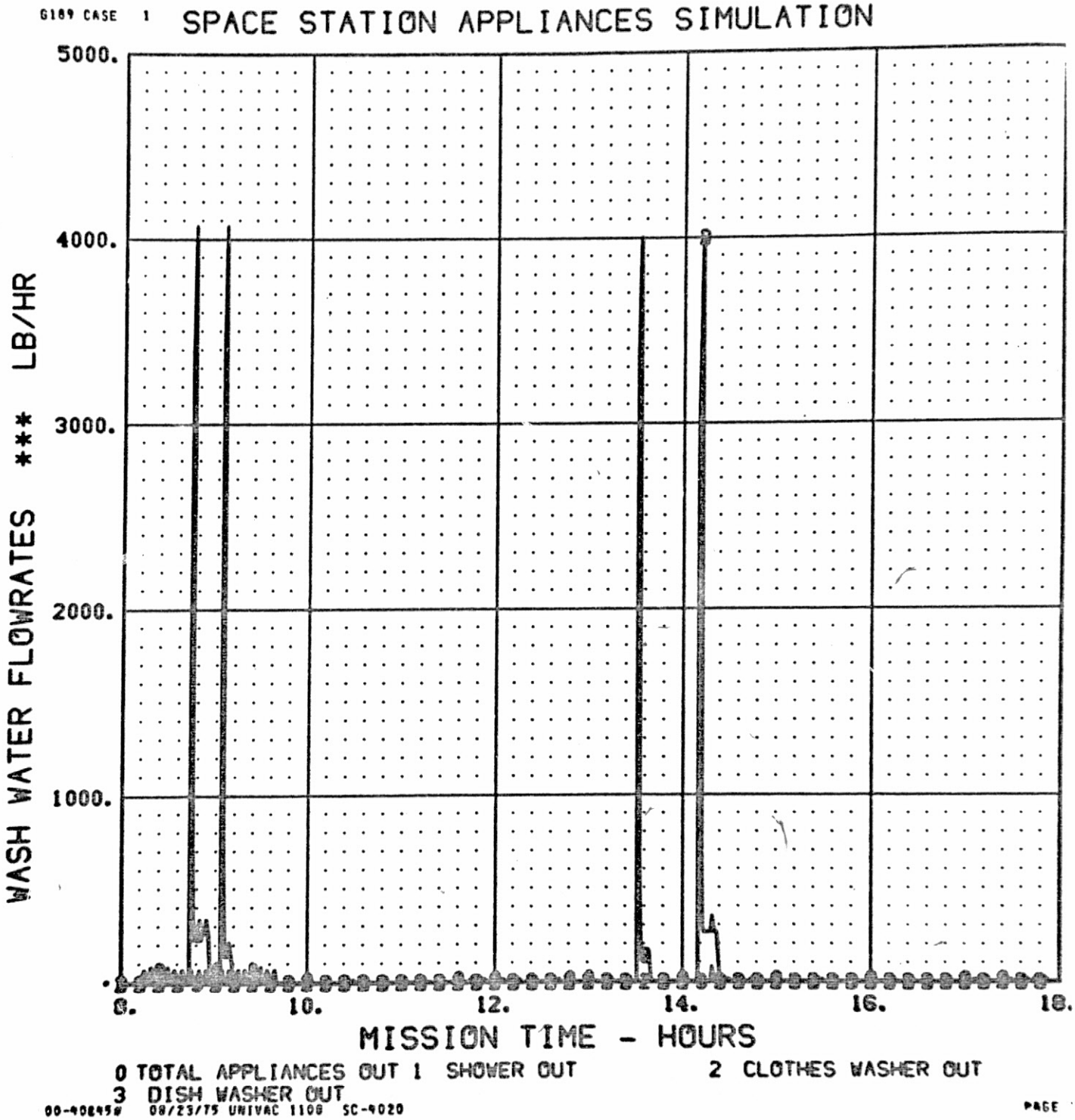

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
HYGIENE AREA AIR FLOWRATES *** LB/HR
160.
140.
120.
100.
80.
60.
40.
20.
.
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 CABIN FAN - H/X
1 SHOWER
2 DRYJOHN
3 CLOTHES WASHER
00-39832# 08/23/75 UNIVAC 1108 SC-4020
PAGE

C-3


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
HYGIENE AREA APPLIANCES AIR OUT TEMP- (F)
175.
150.
125.
100.
75.
50.
25.
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
0 SHOWER BLEED AIR
1 DRYJOHN
2 CLOTHES DRYER
3 APPLIANCE-HX RETURN
00-37643# 08/23/75 UNIVAC 1108 SC-4020
PAGE 1

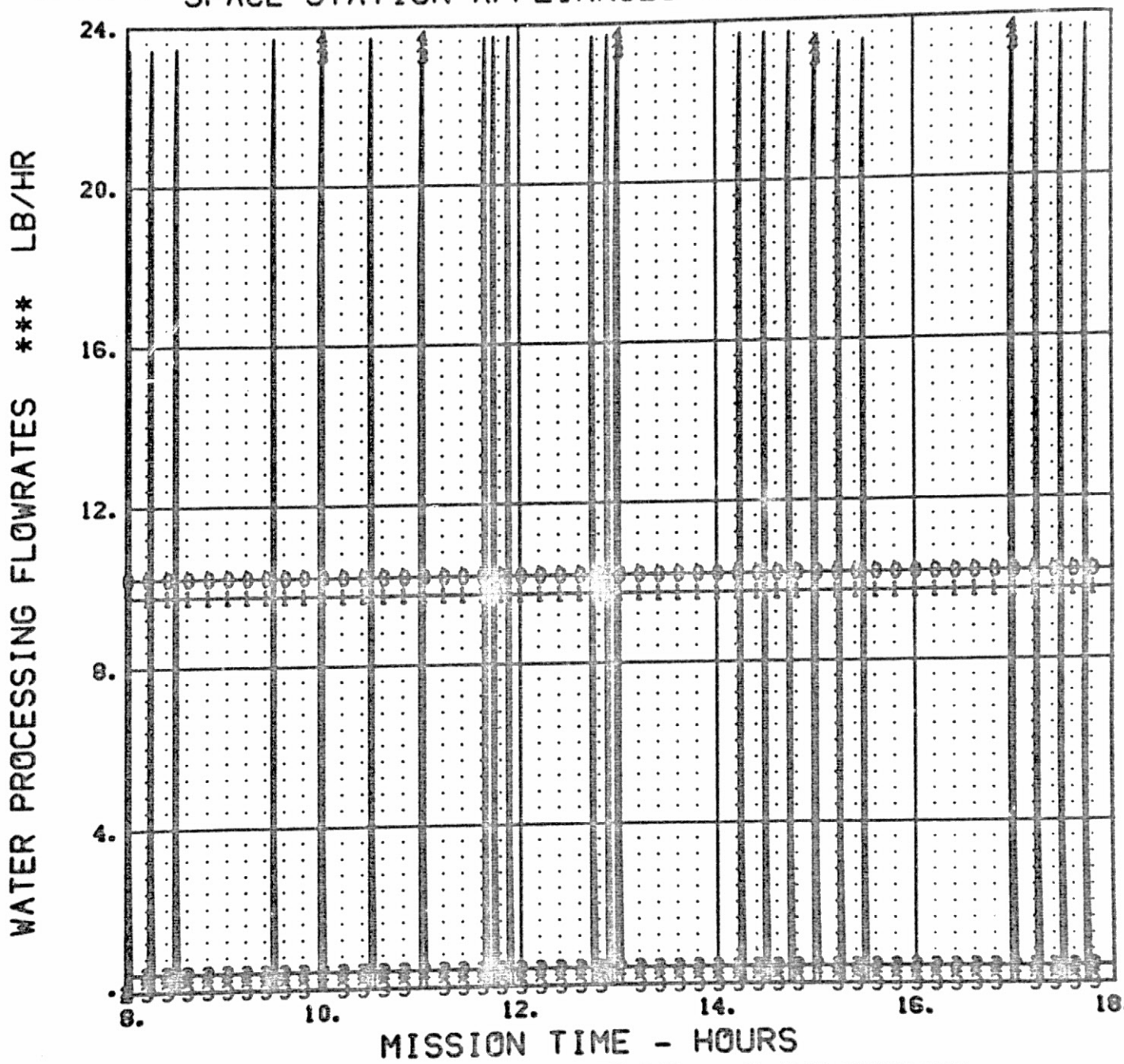

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
175.
150.
125.
100.
75.
50.
25.
0.
WATER TEMPERATURES *** DEG F
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
0 WASH WATER STORAGE 1 APPLIANCES RETURN-89 2 VCD INLET
00-38819# 08/23/75 UNIVAC 1108 SC-4020
PAGE 9


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
WASH WATER FLOWRATES *** LB/HR
400.
350.
300.
250.
200.
150.
100.
50.
.
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
0 STORAGE TOTAL OUT 1 TO SHOWER 2 TO CLOTHES WASHER
3 TO DISH WASHER
22-31827# 09/25/75 UNIVAC 1108 SC-4020
PAGE 6


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
5000.
4000.
3000.
2000.
1000.
WASH WATER FLOWRATES *** LB/HR
0.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
0 TOTAL APPLIANCES OUT 1 SHOWER OUT
2 CLOTHES WASHER OUT
3 DISH WASHER OUT
00-40849# 08/23/75 UNIVAC 1108 SC-4020
PAGE

G189 CASE 1

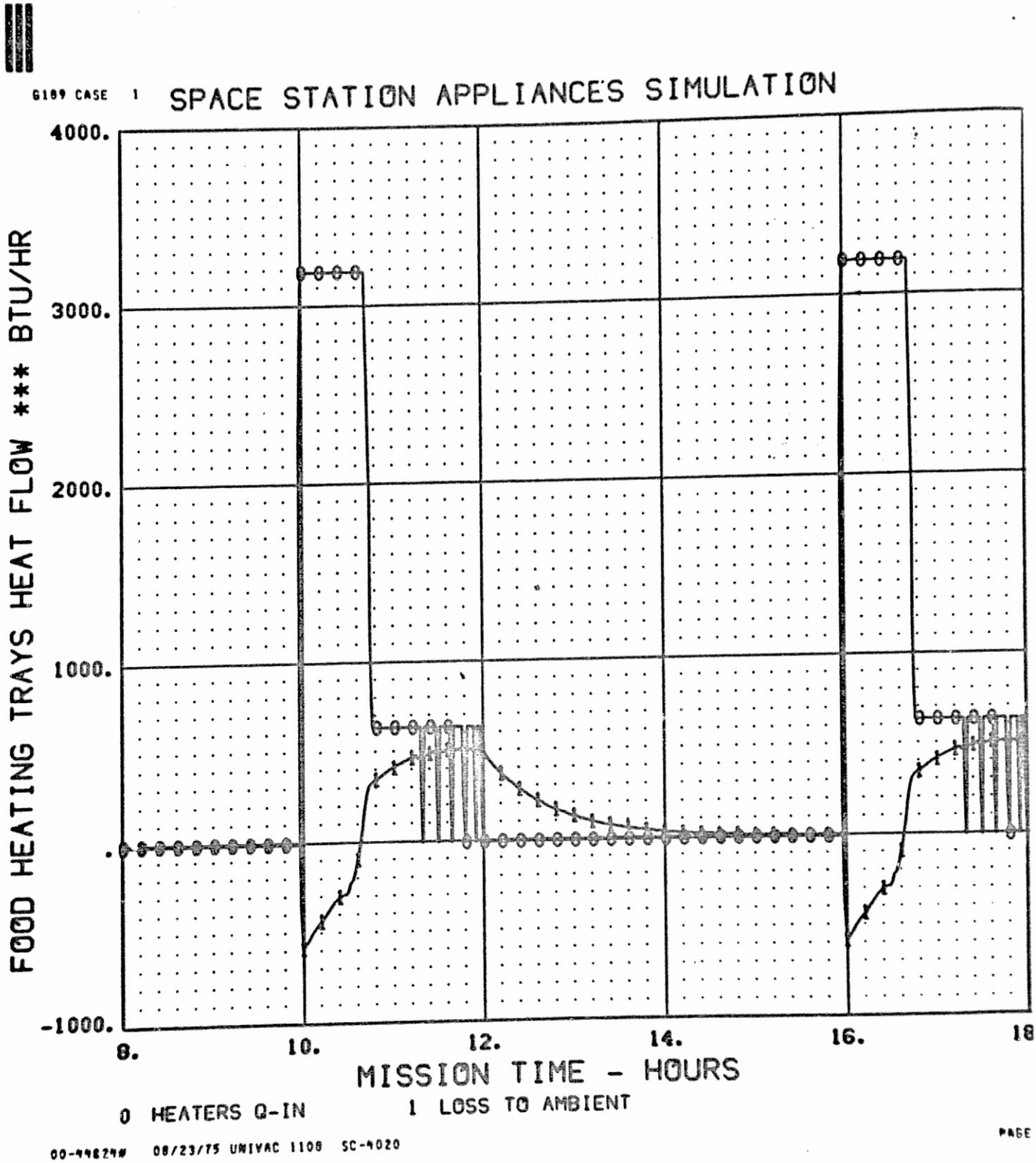
SPACE STATION APPLIANCES SIMULATION

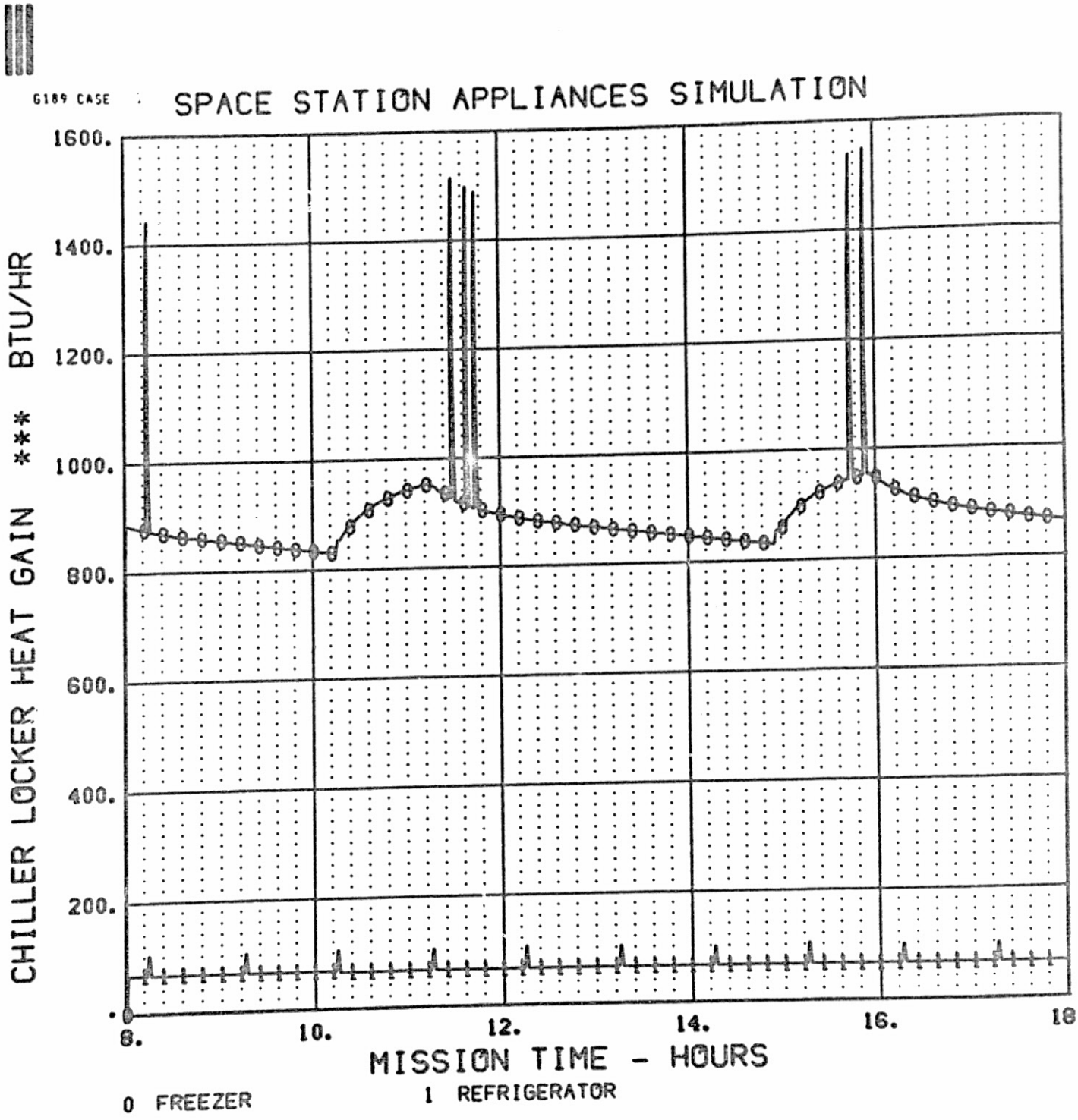


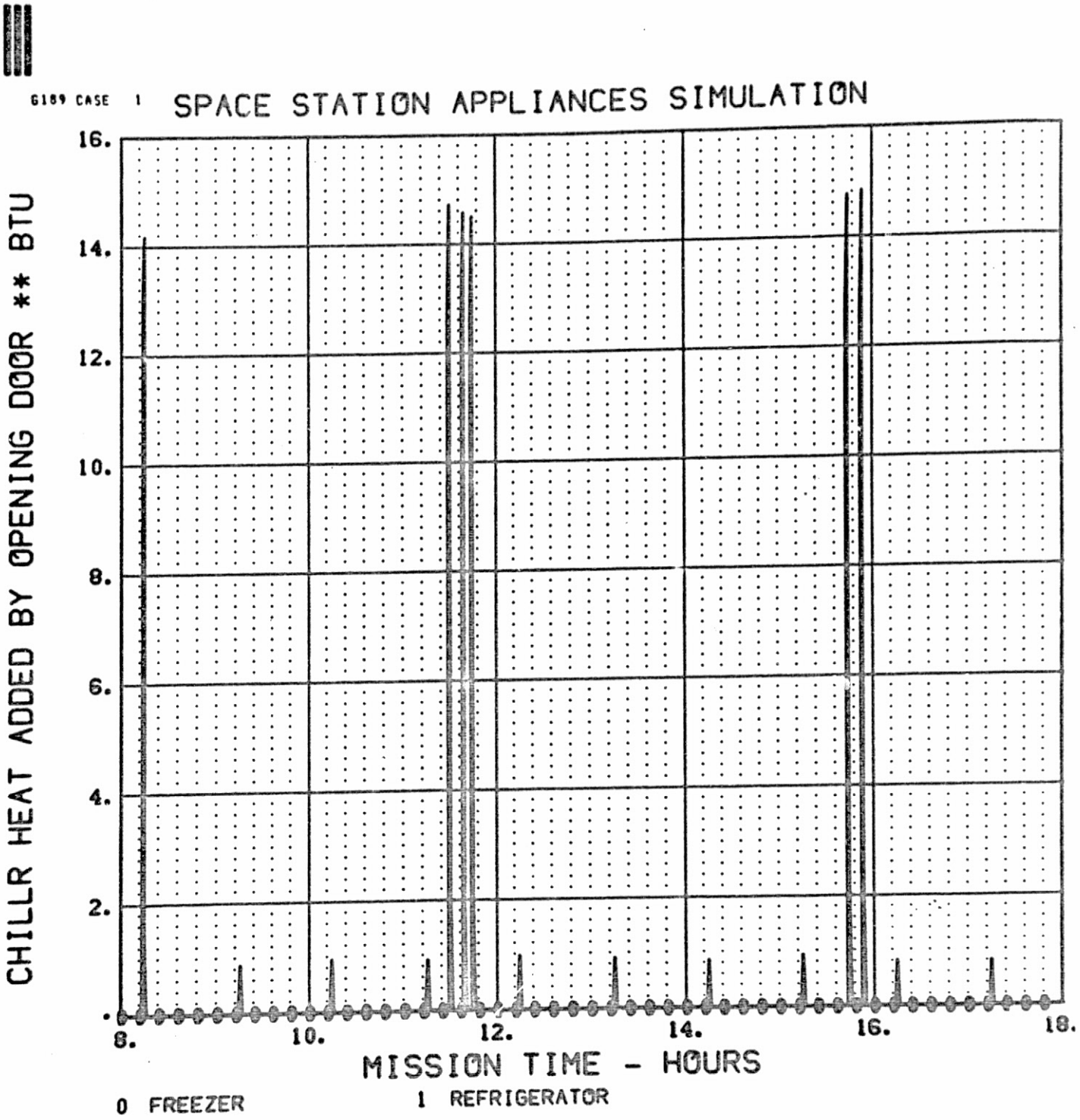
0 R/O UNIT FEED INLET 1 R/O PRODUCT OUT 2 R/O BRINE OUT
3 FROM DRYJOHN 4 INTO VCD TANK (93)

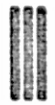
00-41823# 08/23/75 UNIVAC 1108 SC-4020

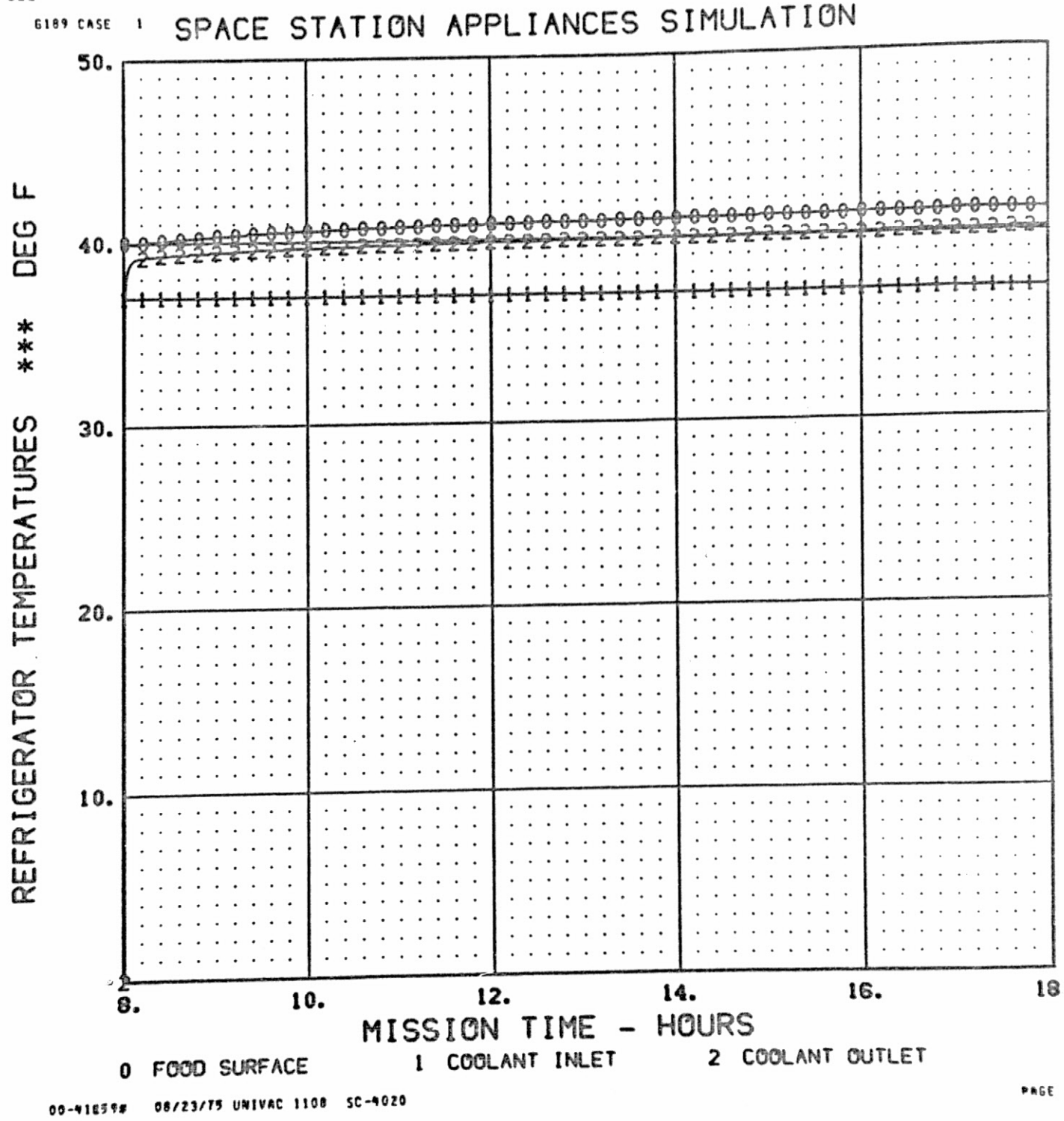
PAGE 1

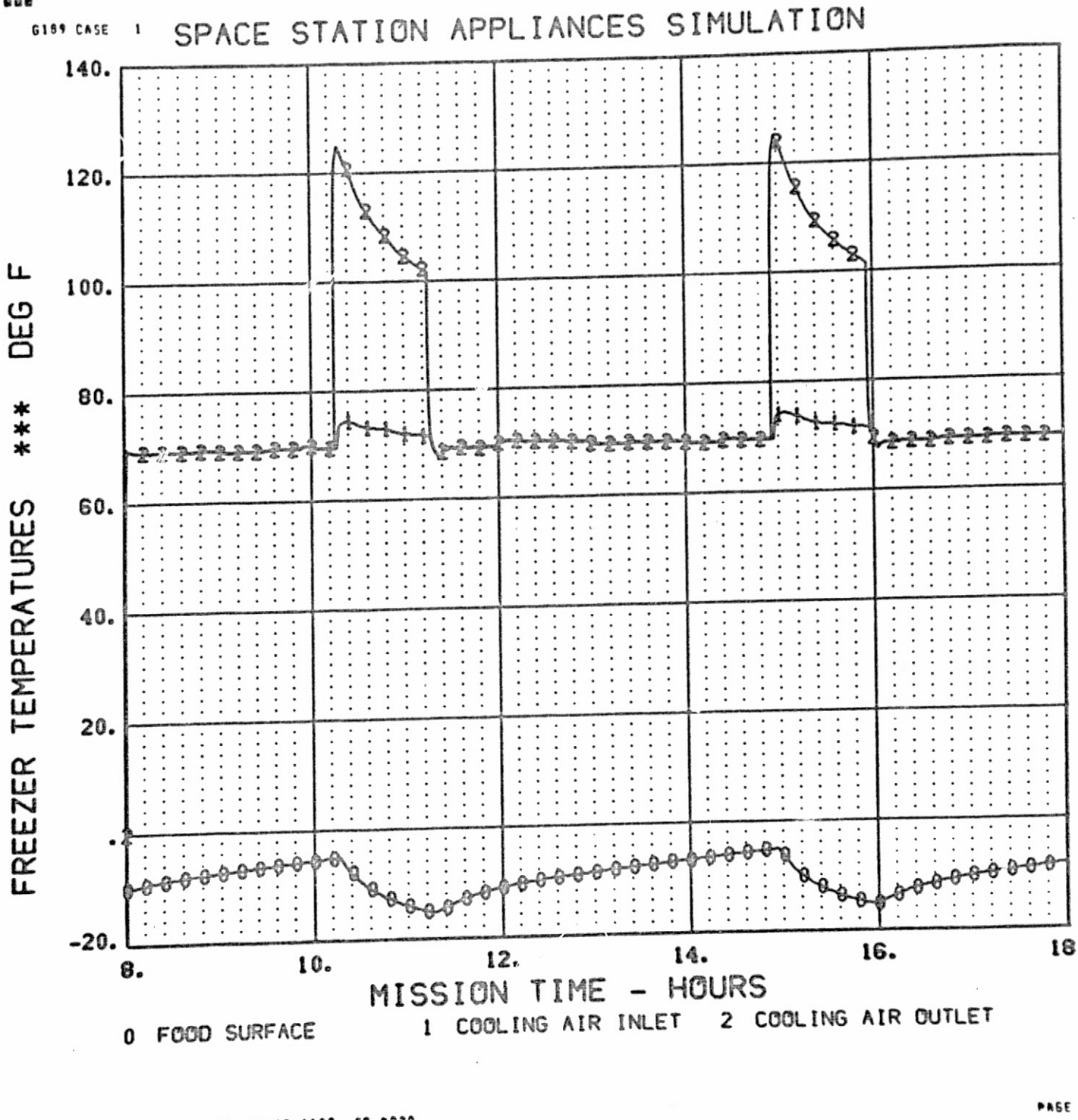

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
4000.
3000.
2000.
1000.
.
-1000.
FOOD HEATING TRAYS HEAT FLOW *** BTU/HR
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 HEATERS Q-IN
1 LOSS TO AMBIENT
PAGE
08/23/75 UNIVAC 1108 SC-4020

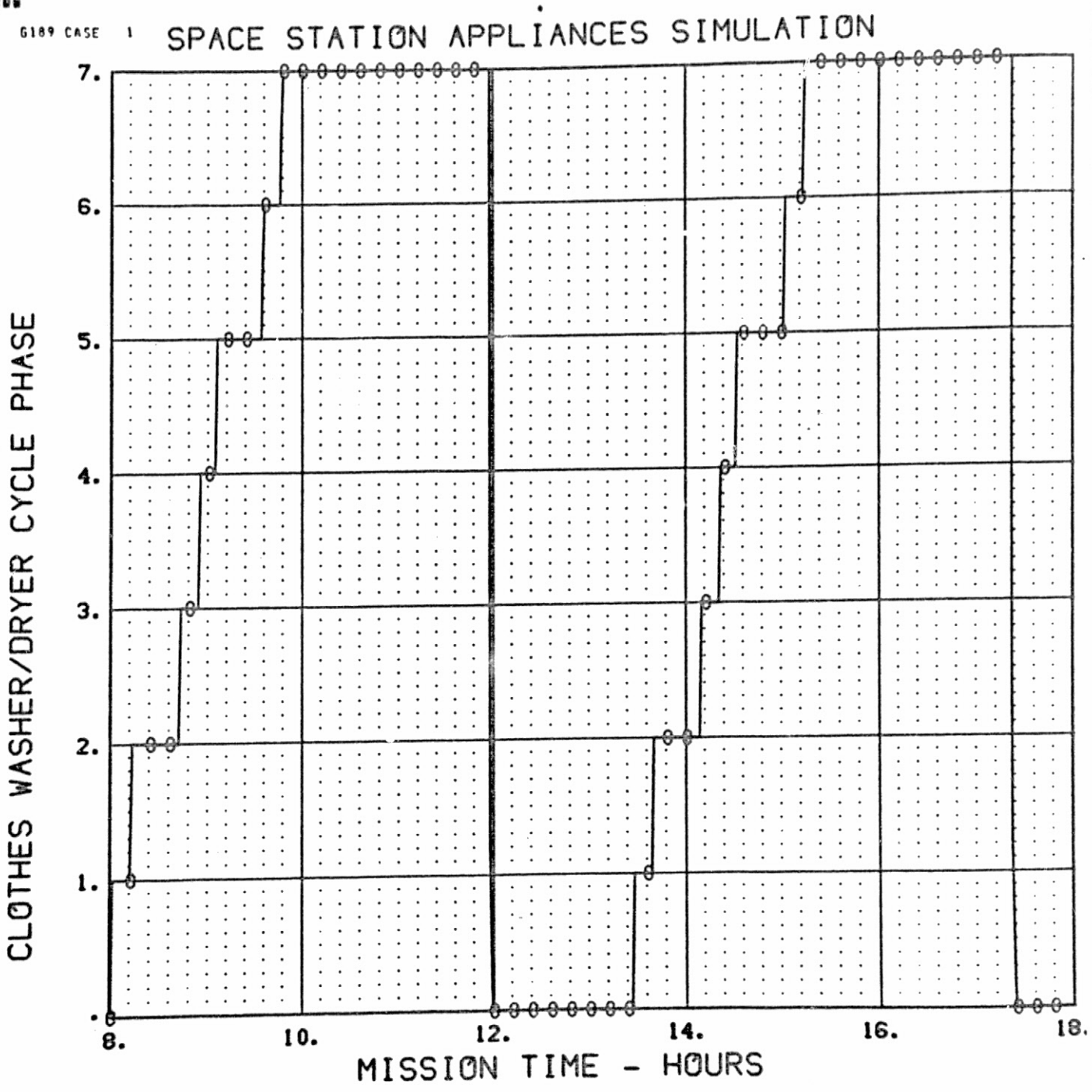

G189 CASE
SPACE STATION APPLIANCES SIMULATION
CHILLER LOCKER HEAT GAIN *** BTU/HR
1600.
1400.
1200.
1000.
800.
600.
400.
200.
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 FREEZER
1 REFRIGERATOR
00-43812# 08/23/75 UNIVAC 1108 SC-4020
PAGE

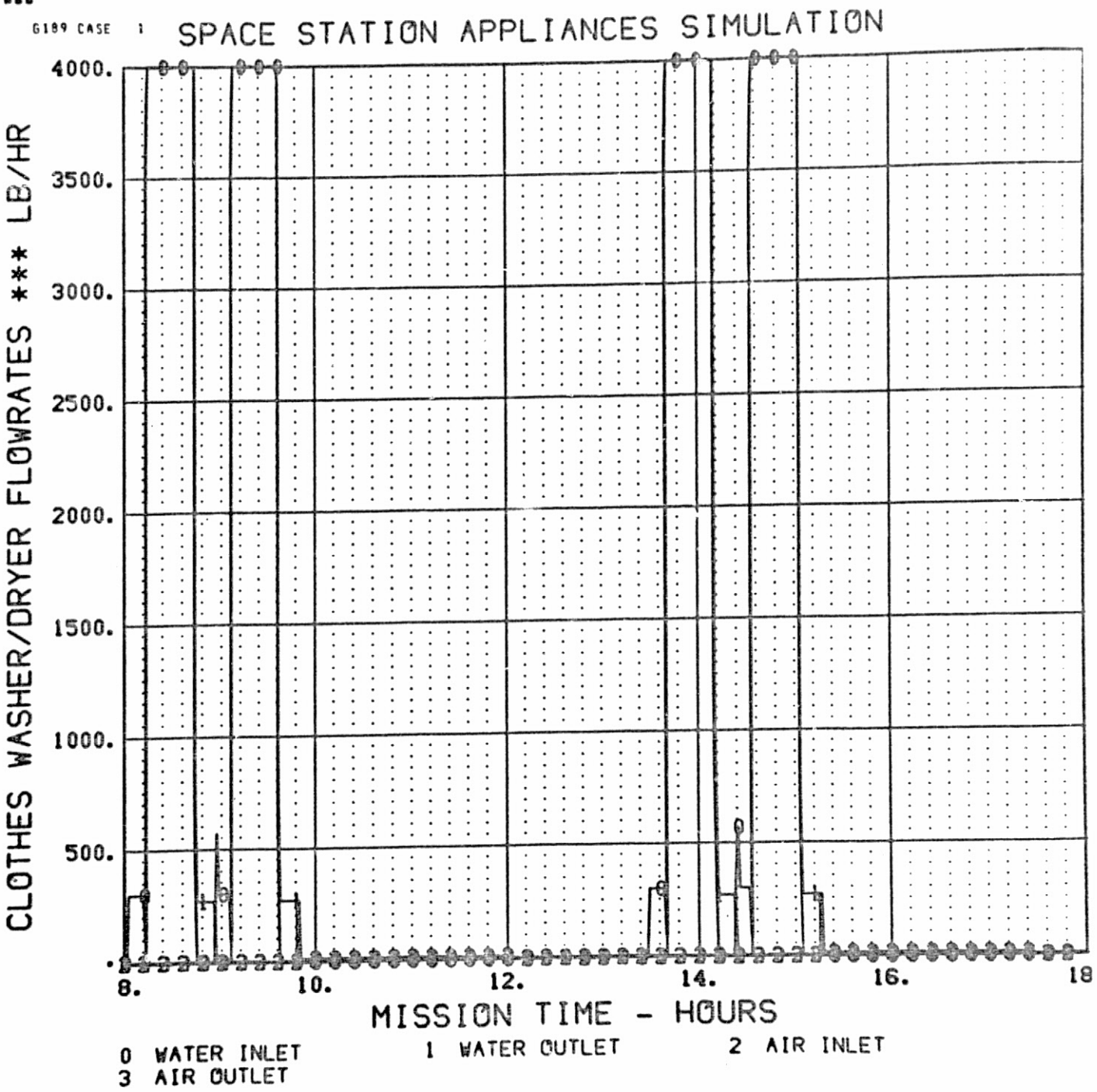

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
CHILLR HEAT ADDED BY OPENING DOOR ** BTU
16.
14.
12.
10.
8.
6.
4.
2.
.
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
0 FREEZER
1 REFRIGERATOR
00-93848# 08/23/75 UNIVAC 1108 SC-4020
PAGE

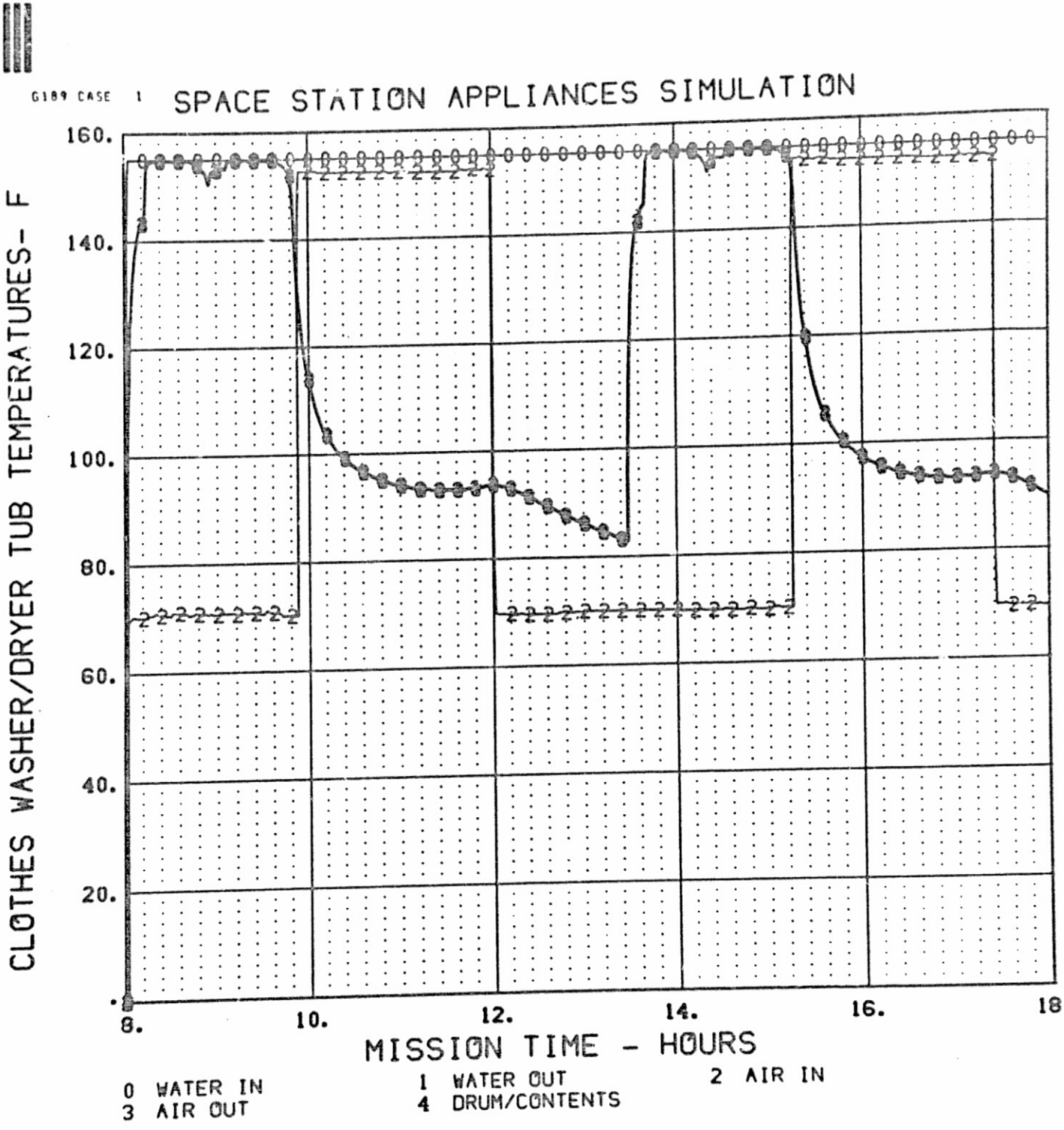


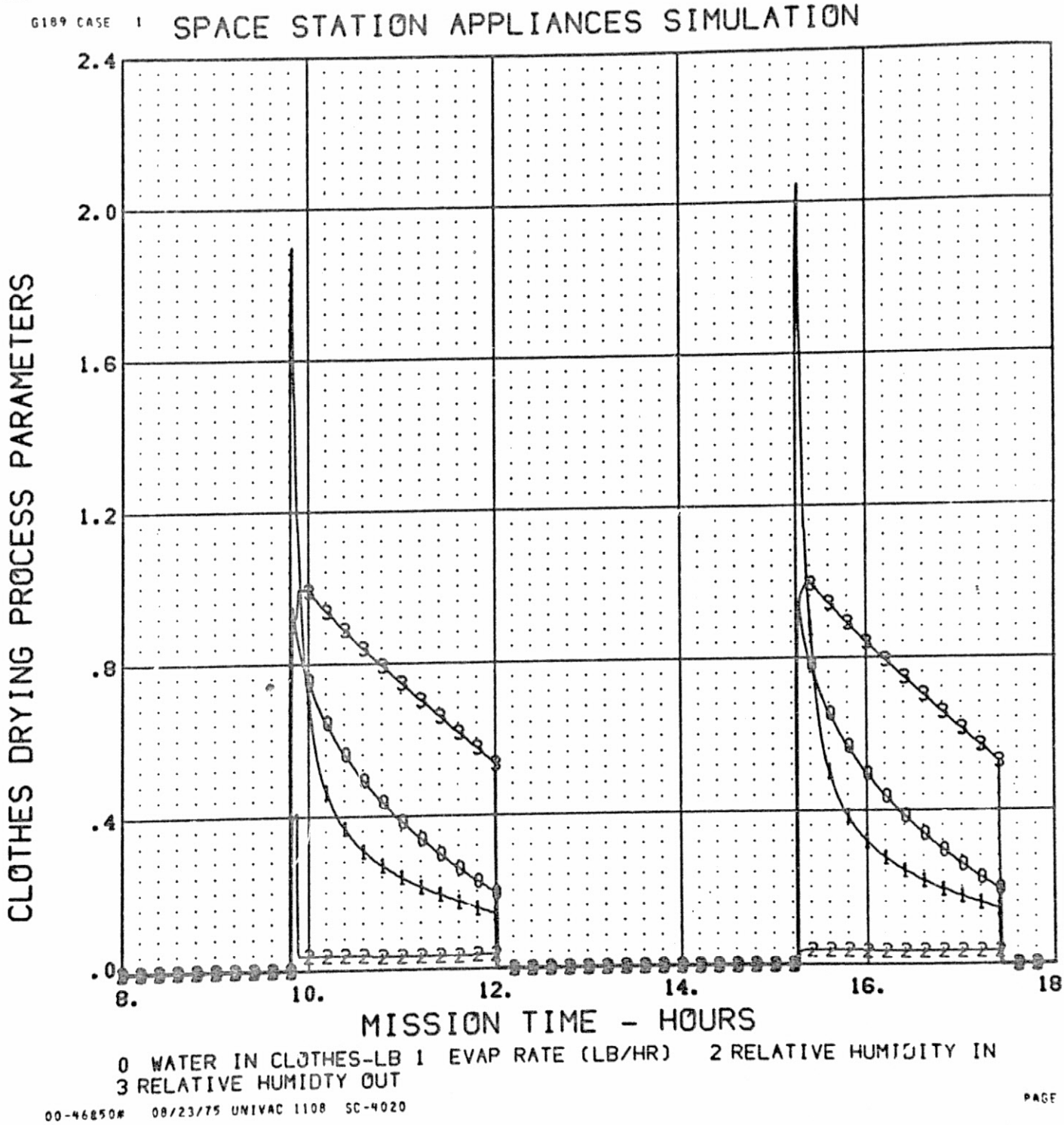

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
REFRIGERATOR TEMPERATURES *** DEG F
50.
40.
30.
20.
10.
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 FOOD SURFACE
1 COOLANT INLET
2 COOLANT OUTLET
00-418594 08/23/75 UNIVAC 1108 SC-4020
PAGE

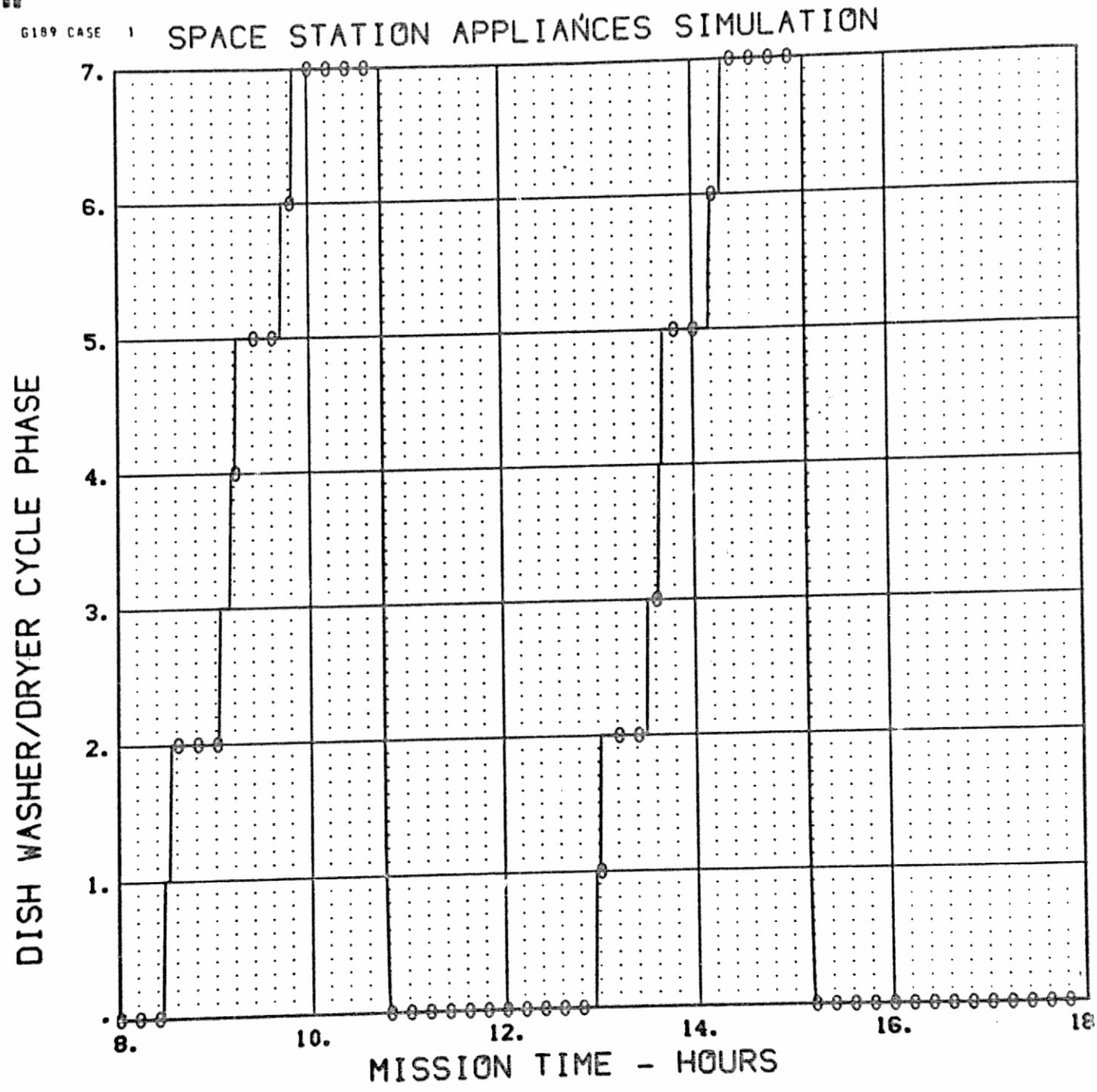

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
FREEZER TEMPERATURES *** DEG F
140.
120.
100.
80.
60.
40.
20.
-20.
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 FOOD SURFACE
1 COOLING AIR INLET
2 COOLING AIR OUTLET
00-92835# 08/23/75 UNIVAC 1108 SC-9020
PAGE

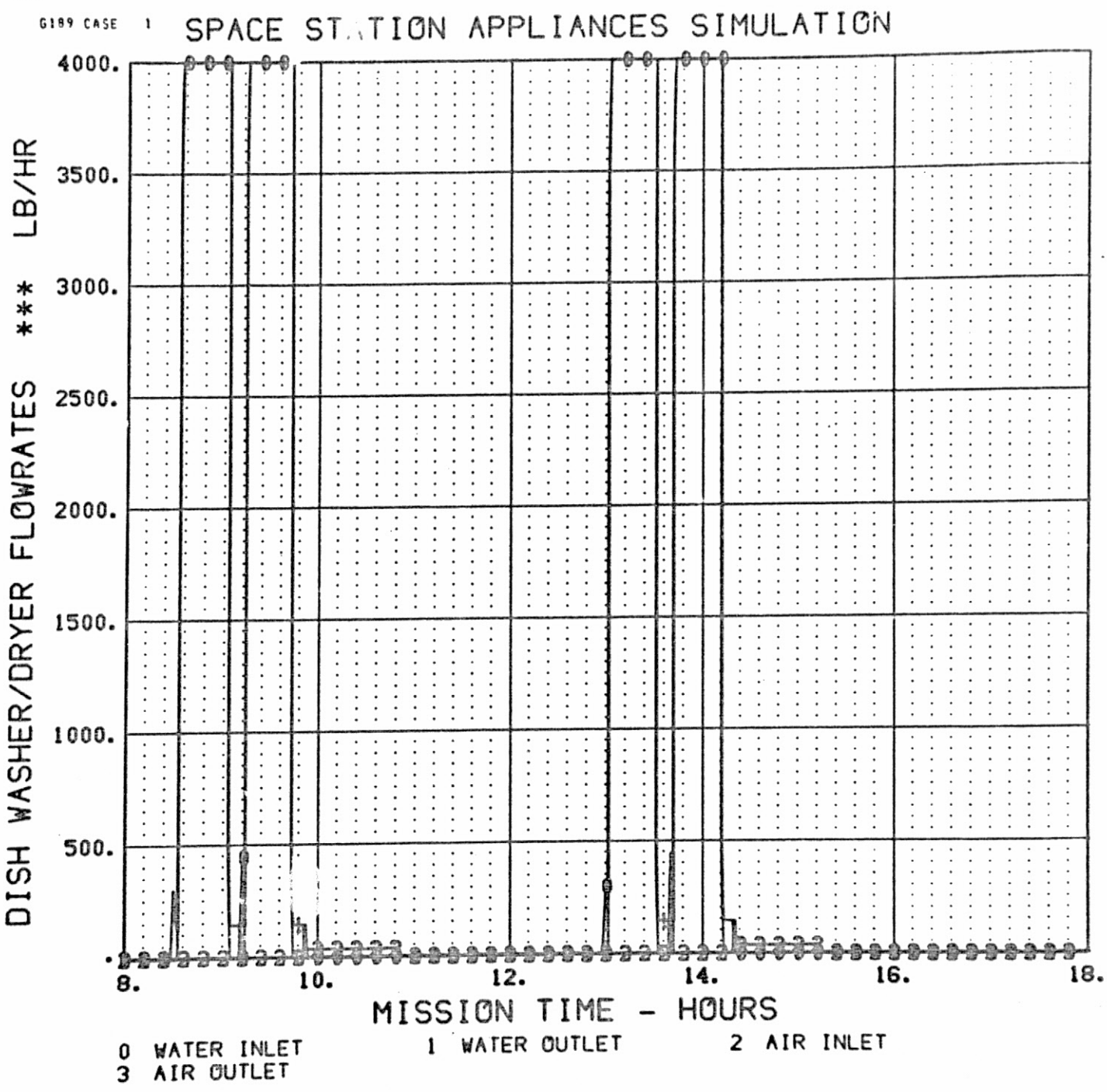

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
CLOTHES WASHER/DRYER CYCLE PHASE
7.
6.
5.
4.
3.
2.
1.
.
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
00-45800# 08/23/75 UNIVAC 1108 SC-4020
PAGE


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
CLOTHES WASHER/DRYER FLOWRATES *** LB/HR
4000.
3500.
3000.
2500.
2000.
1500.
1000.
500.
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 WATER INLET
1 WATER OUTLET
2 AIR INLET
3 AIR OUTLET
00-466194 08/23/75 UNIVAC 1108 SC-4020
PAGE


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
CLOTHES WASHER/DRYER TUB TEMPERATURES- F
160.
140.
120.
100.
80.
60.
40.
20.
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 WATER IN
1 WATER OUT
2 AIR IN
3 AIR OUT
4 DRUM/CONTENTS
00-45837# 08/23/75 UNIVAC 1108 SC-4020

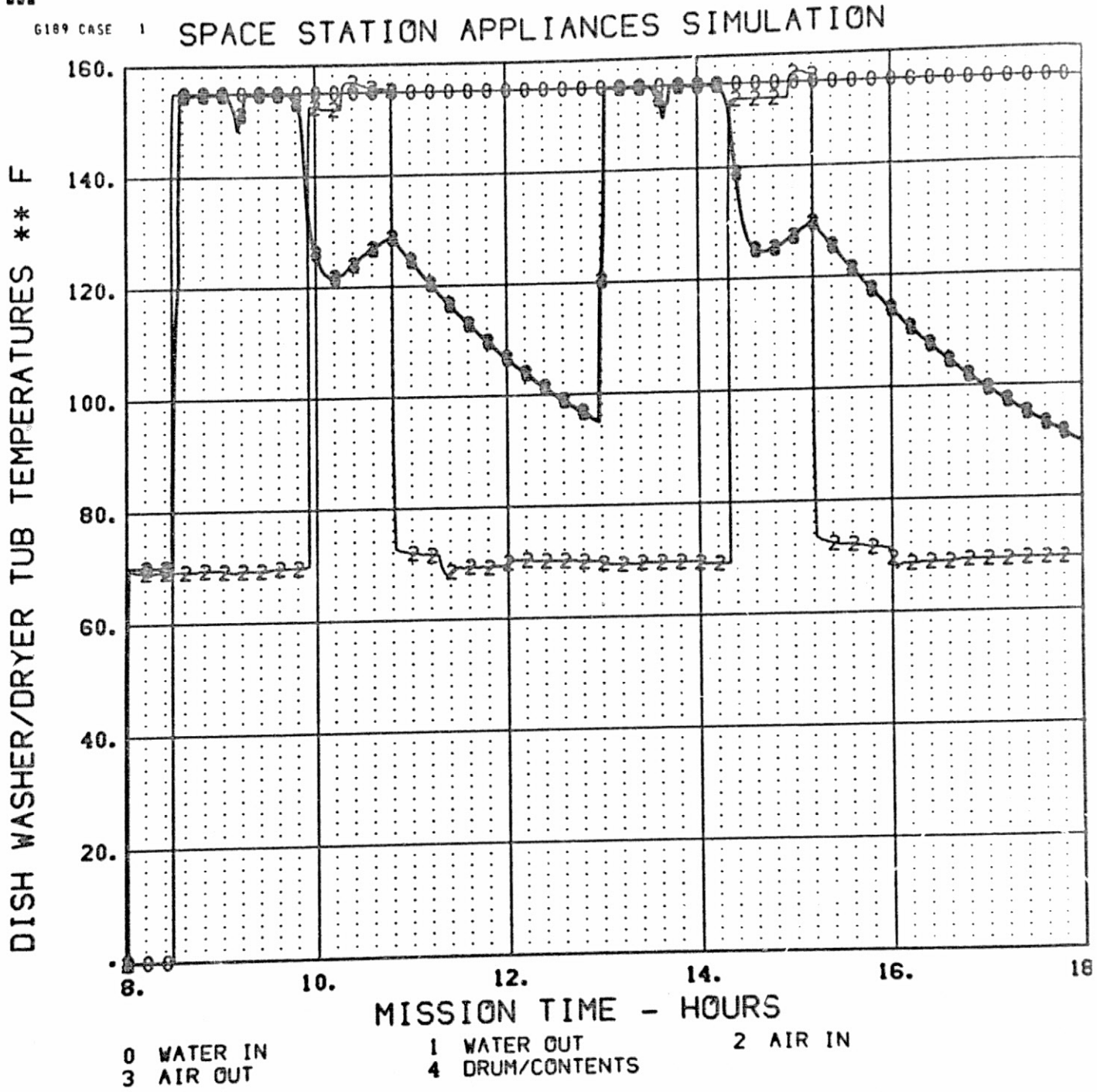

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
CLOTHES DRYING PROCESS PARAMETERS
2.4
2.0
1.6
1.2
.8
.4
.0
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 WATER IN CLOTHES-LB 1 EVAP RATE (LB/HR) 2 RELATIVE HUMIDITY IN
3 RELATIVE HUMIDTY OUT
00-46850# 08/23/75 UNIVAC 1108 SC-4020
PAGE

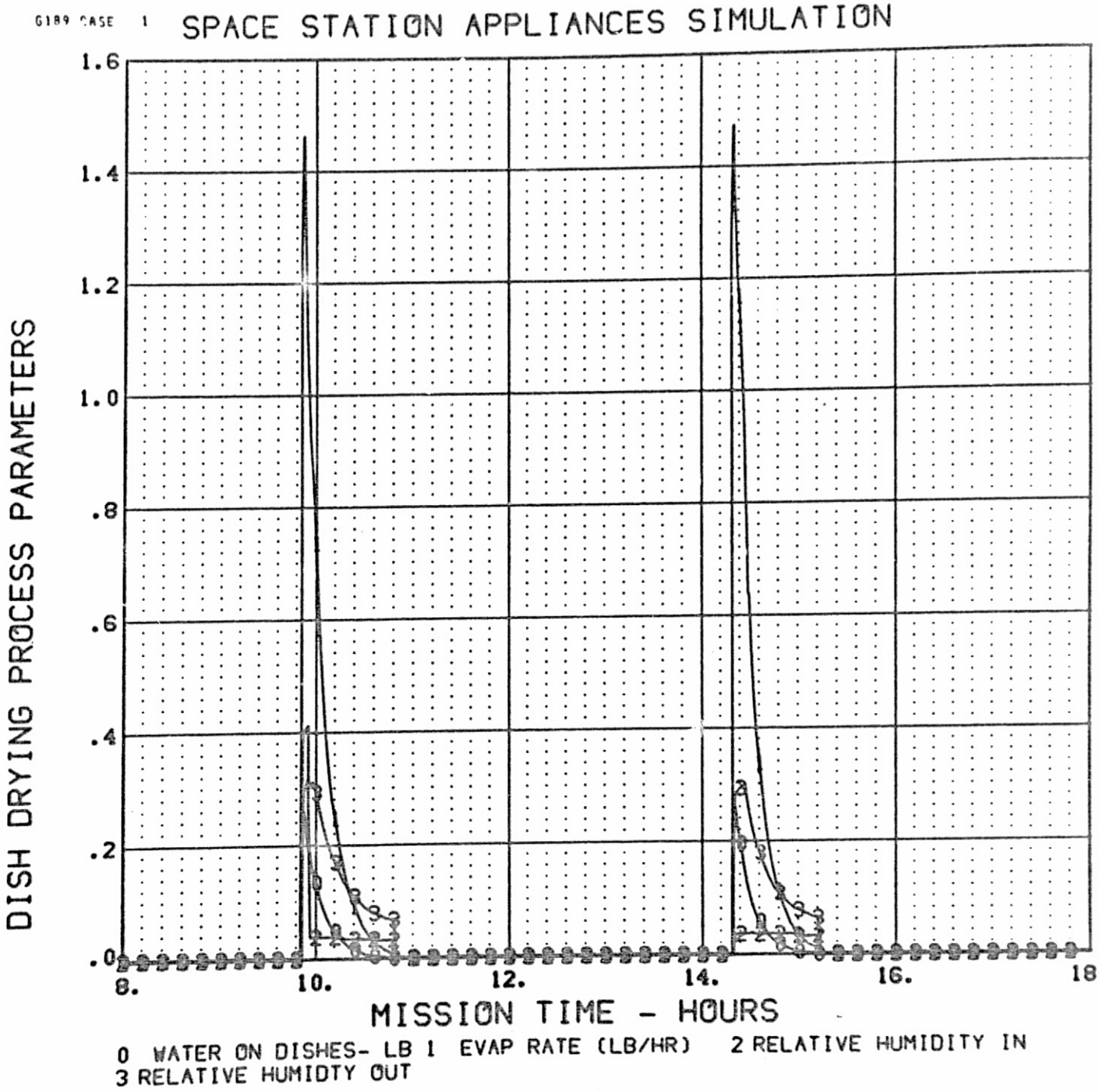

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
DISH WASHER/DRYER CYCLE PHASE
7.
6.
5.
4.
3.
2.
1.
.
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
00-47826# 08/23/75 UNIVAC 1108 SC-4020
PAGE

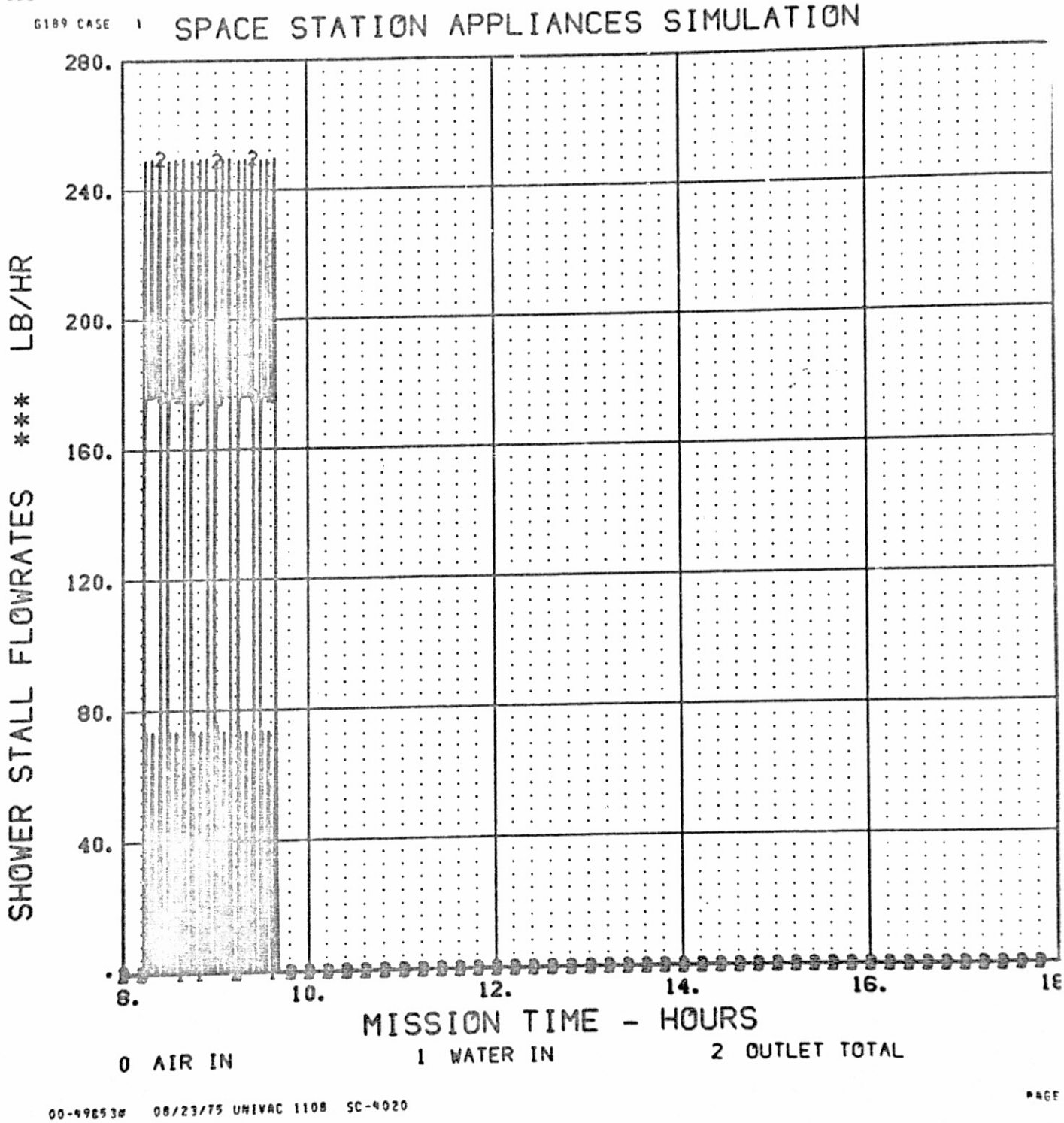


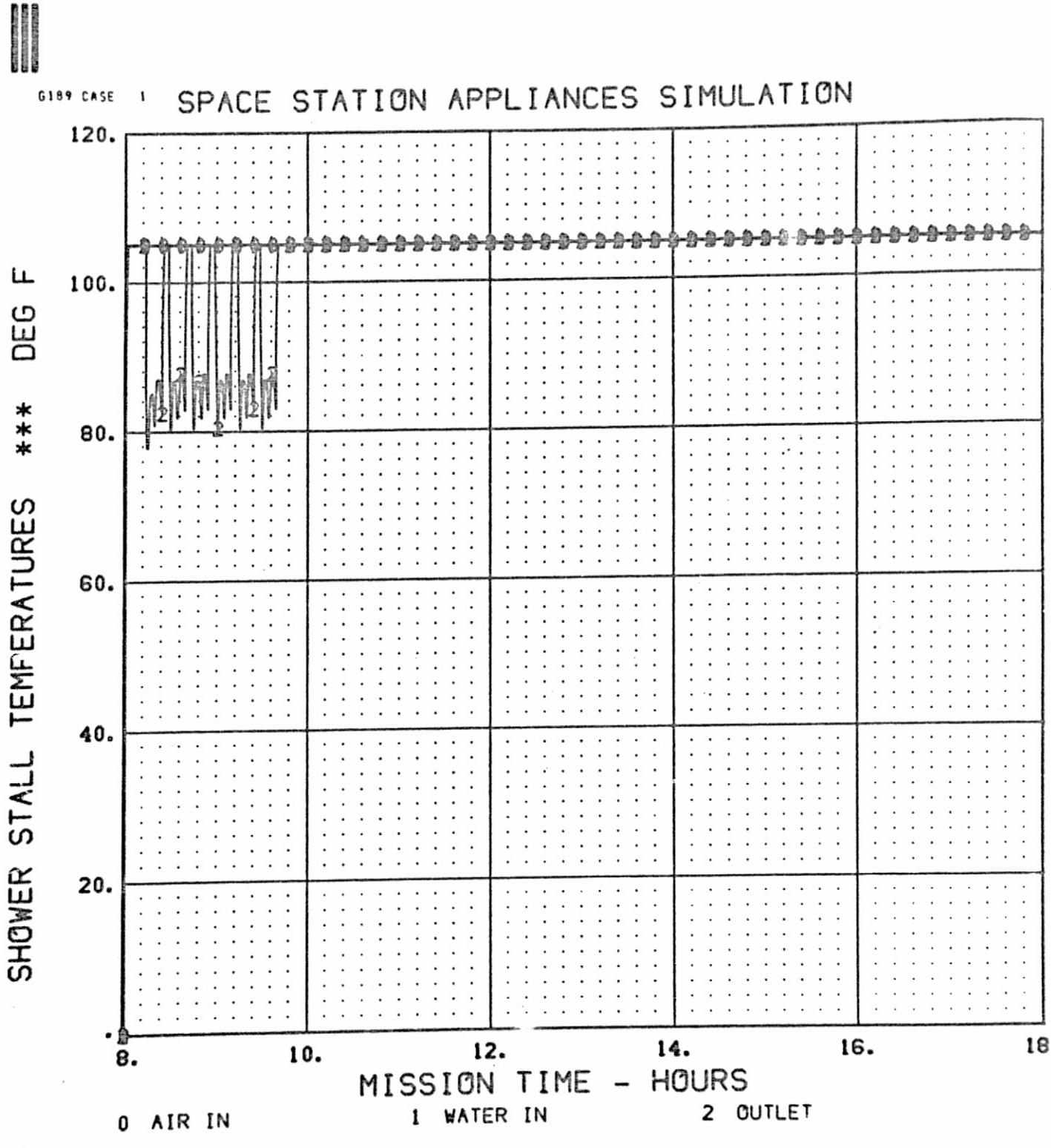
00-48840# 08/23/75 UNIVAC 1108 SC-4020

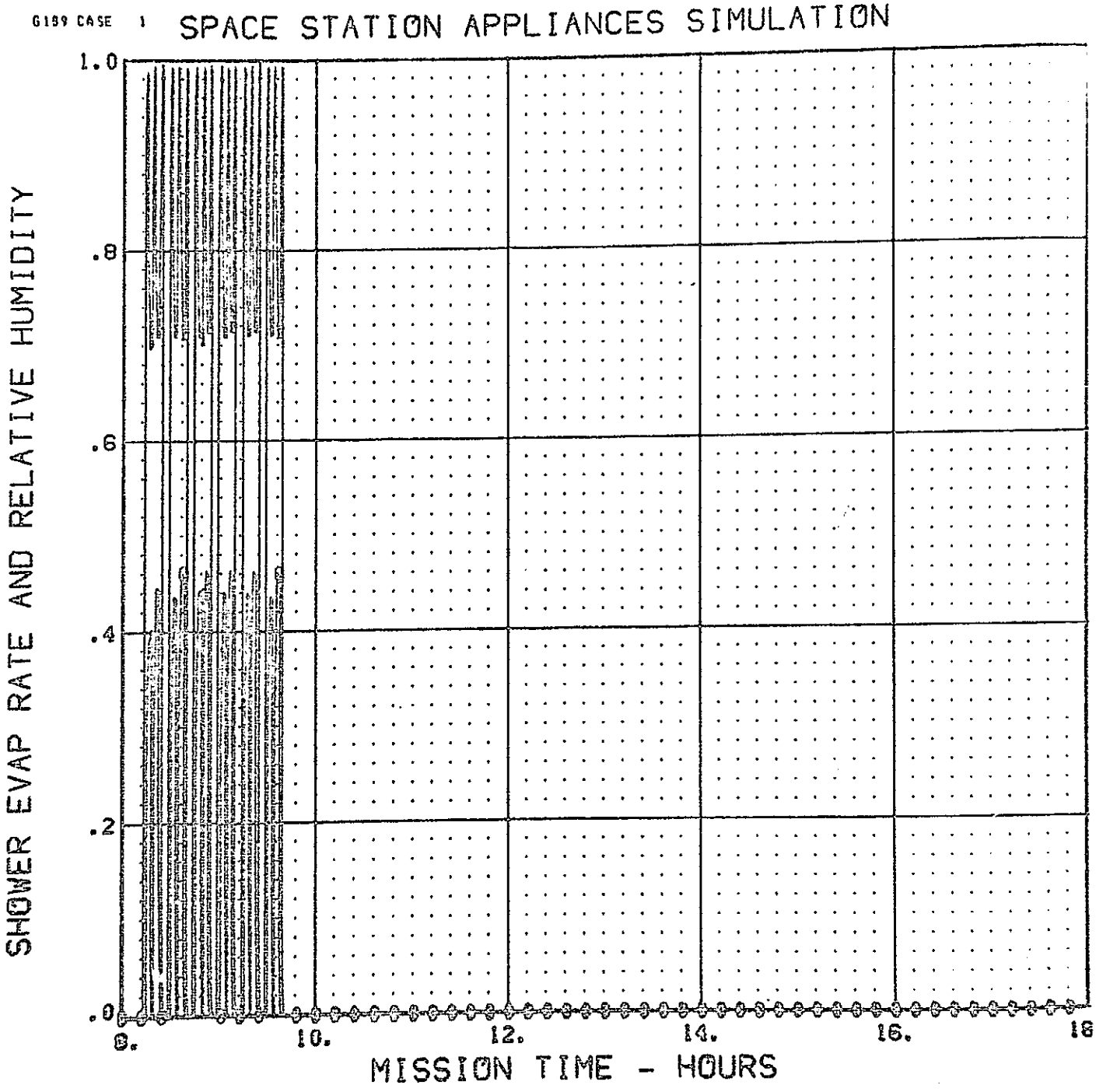
PAGE 2

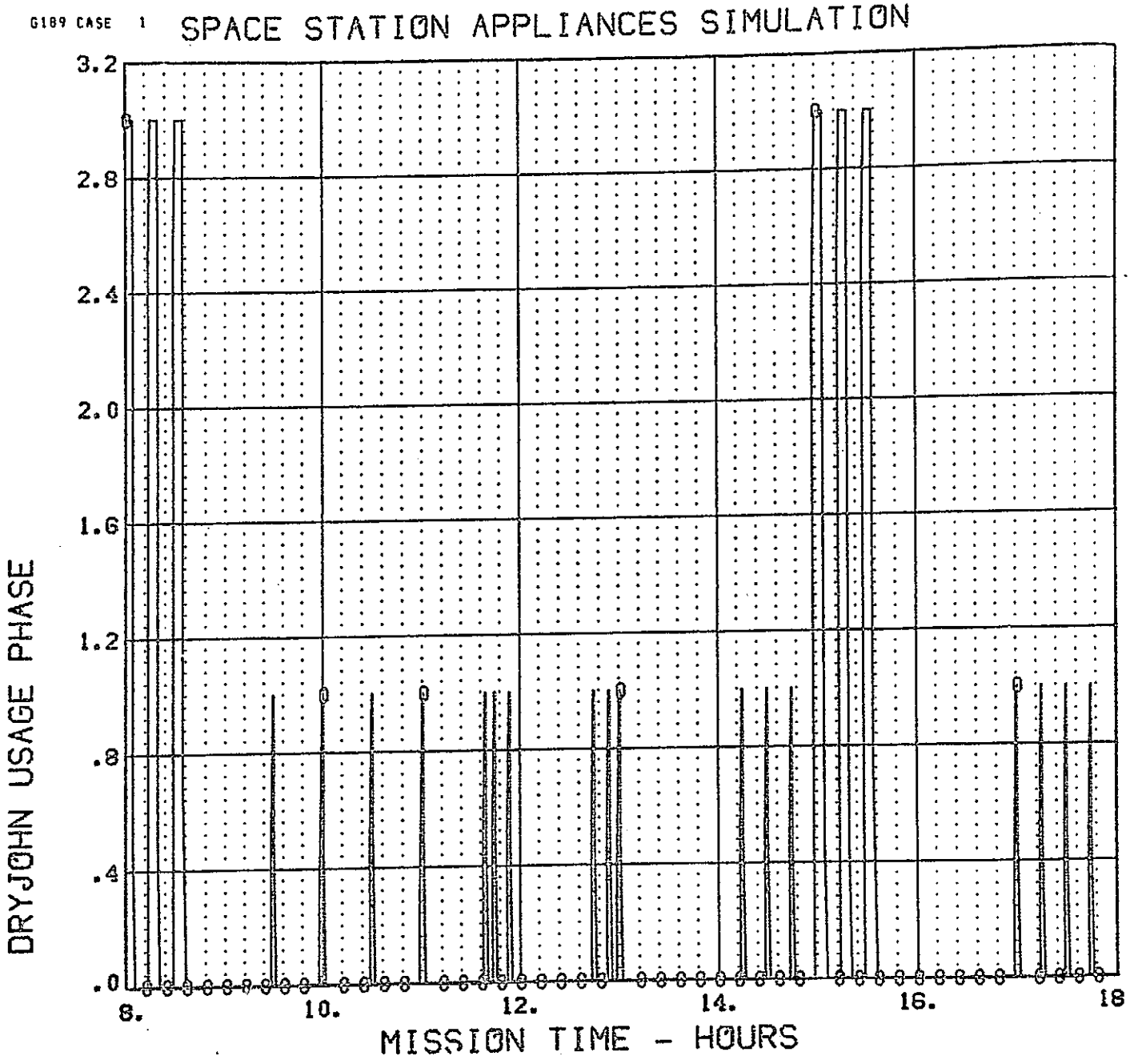

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
DISH WASHER/DRYER TUB TEMPERATURES ** F
160.
140.
120.
100.
80.
60.
40.
20.
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 WATER IN
1 WATER OUT
2 AIR IN
3 AIR OUT
4 DRUM/CONTENTS
00-48803# 08/23/75 UNIVAC 1108 SC-4020
PAGE


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
DISH DRYING PROCESS PARAMETERS
1.6
1.4
1.2
1.0
.8
.6
.4
.2
.0
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 WATER ON DISHES- LB 1 EVAP RATE (LB/HR) 2 RELATIVE HUMIDITY IN
3 RELATIVE HUMIDTY OUT
00-49816# 08/23/75 UNIVAC 1108 SC-4020
PAGE


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
SHOWER STALL FLOWRATES *** LB/HR
280.
240.
200.
160.
120.
80.
40.
8.
10.
12.
14.
16.
MISSION TIME - HOURS
0 AIR IN
1 WATER IN
2 OUTLET TOTAL
00-49653# 08/23/75 UNIVAC 1108 SC-4020
PAGE


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
SHOWER STALL TEMPERATURES *** DEG F
120.
100.
80.
60.
40.
20.
0
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 AIR IN
1 WATER IN
2 OUTLET
00-50829# 08/23/75 UNIVAC 1108 SC-4020
PAGE


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
SHOWER EVAP RATE AND RELATIVE HUMIDITY
1.0
.8
.6
.4
.2
.0
8.
10.
12.
14.
16.
18
MISSION TIME - HOURS
0 EVAPORATION (LB/HR) 1 OUTLET HUMIDITY



00-51841# 08/23/75 UNIVAC 1108 SC-4020

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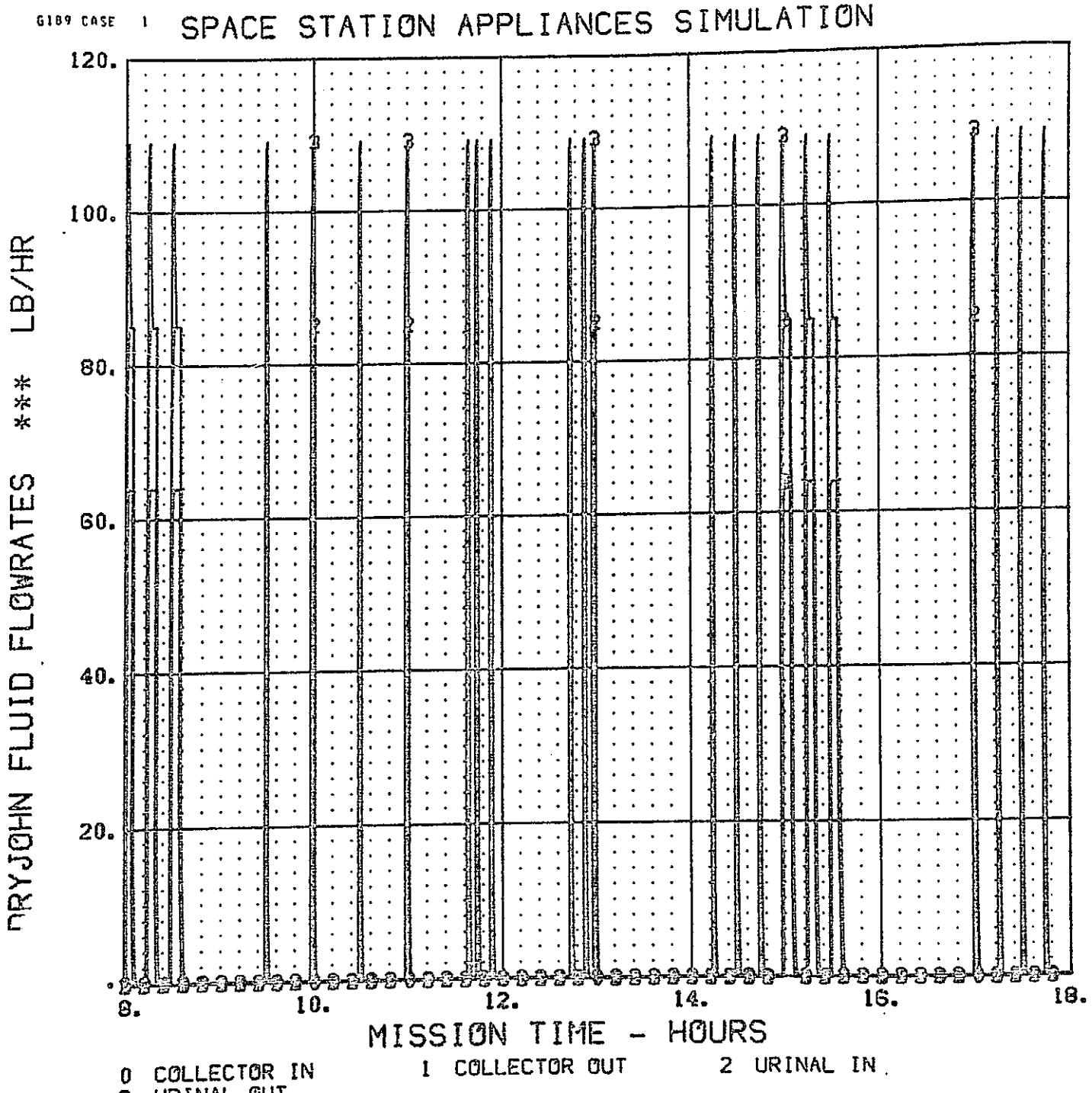
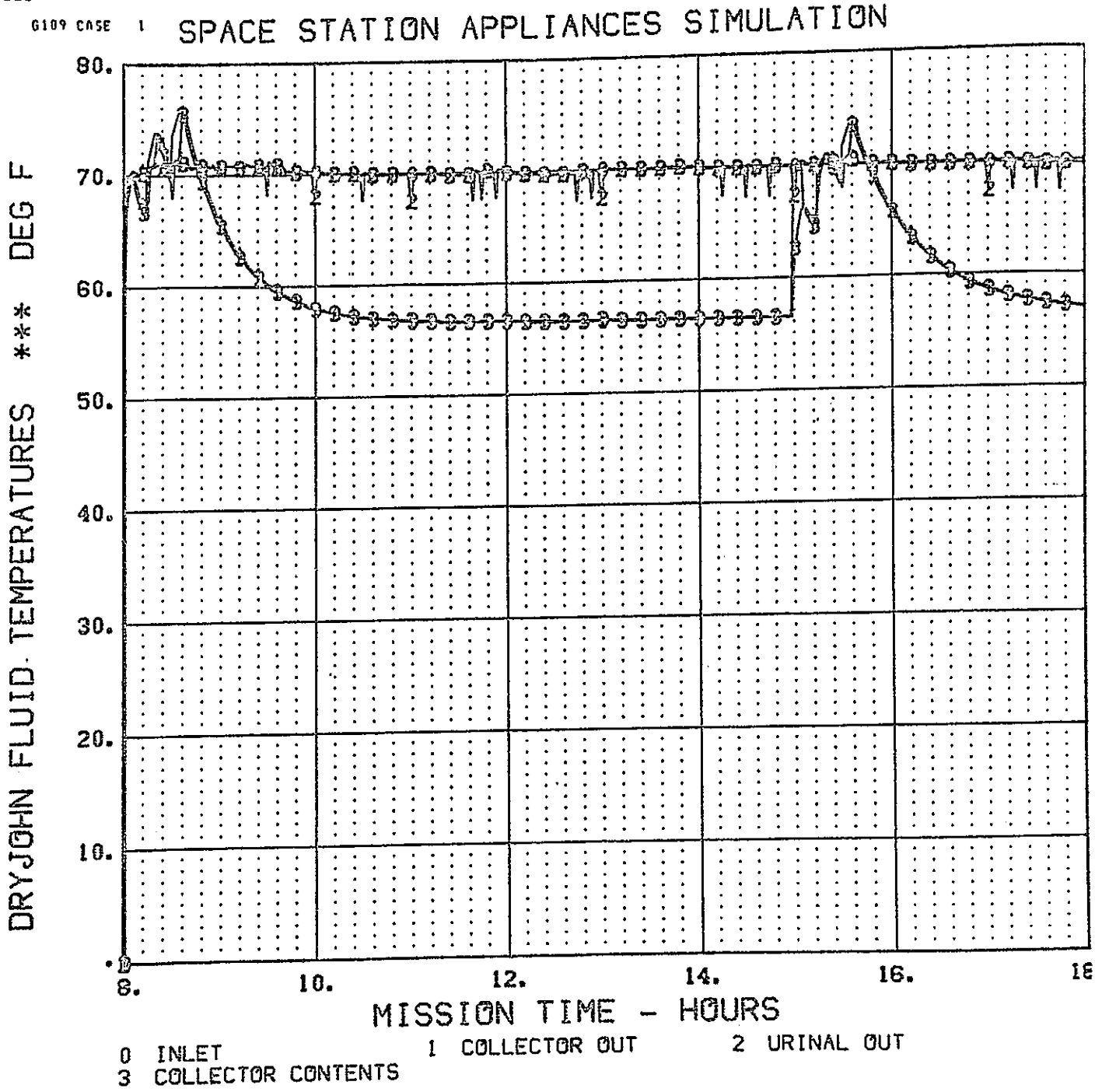
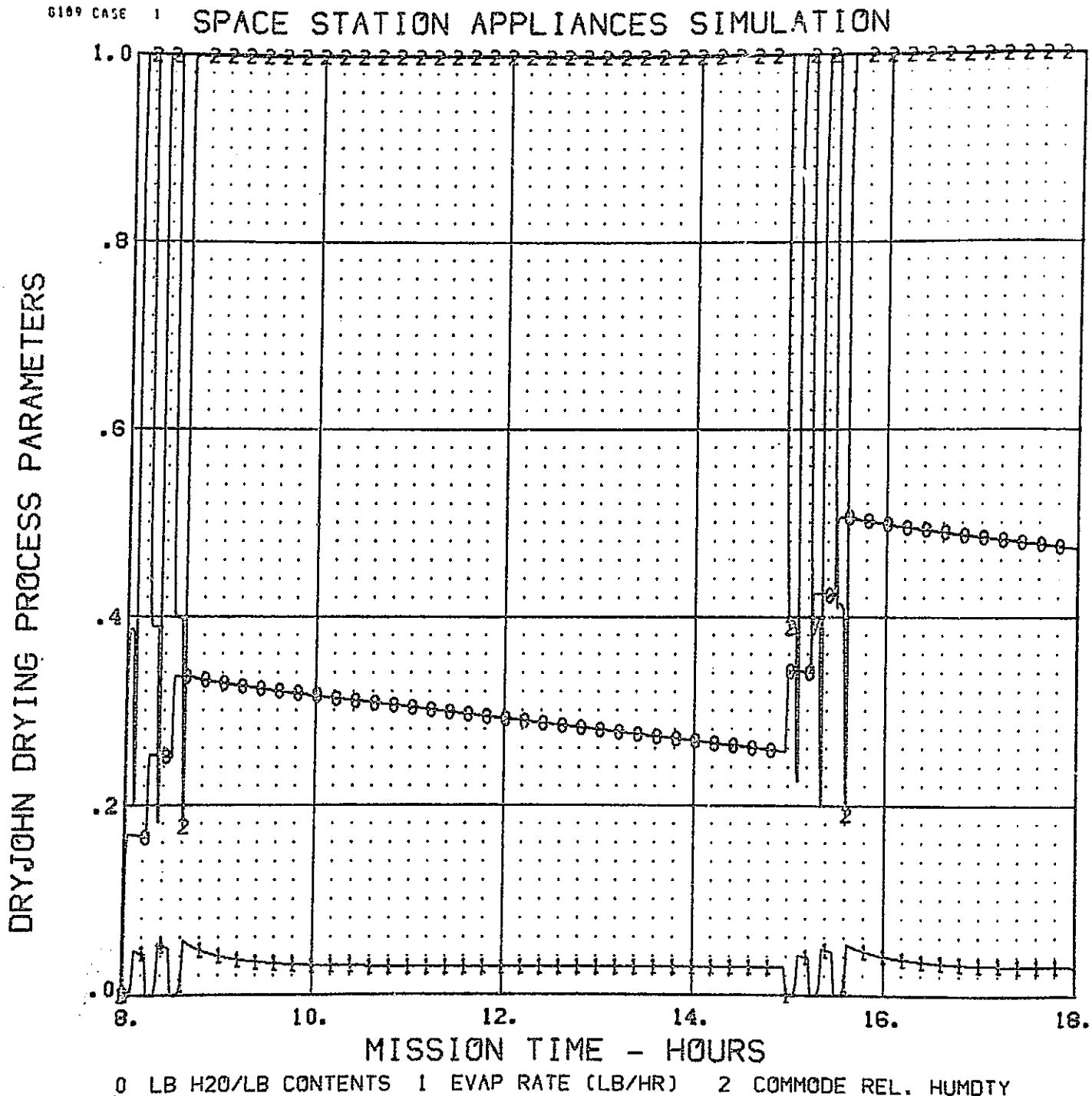

G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
DRYJOHN FLUID FLOWRATES *** LB/HR
120.
100.
80.
60.
40.
20.
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
0 COLLECTOR IN
1 COLLECTOR OUT
2 URINAL IN
3 URINAL OUT
00-52818# 08/23/75 UNIVAC 1108 SC-4020
PAGE 1


G109 CASE 1
SPACE STATION APPLIANCES SIMULATION
DRYJOHN FLUID TEMPERATURES *** DEG F
80.
70.
60.
50.
40.
30.
20.
10.
8.
10.
12.
14.
16.
MISSION TIME - HOURS
0 INLET
1 COLLECTOR OUT
2 URINAL OUT
3 COLLECTOR CONTENTS
00-52857# 08/23/75 UNIVAC 1108 SC-4020
PAGE


G189 CASE 1
SPACE STATION APPLIANCES SIMULATION
DRYJOHN DRYING PROCESS PARAMETERS
1.0
.8
.6
.4
.2
.0
8.
10.
12.
14.
16.
18.
MISSION TIME - HOURS
0 LB H20/LB CONTENTS 1 EVAP RATE (LB/HR) 2 COMMODE REL. HUMDTY

FINAL RESULTS

SPACE STATION APPLIANCES SIMULATION

COMPONENT SOLUTION RESULTS AT END OF TRANSIENT, TIME = 64800.0 SEC SYSTEM PASS = 400

CONGRATULATIONS - THE RUN WAS A HOWLING SUCCESS .

NONE OF THE COMPONENTS HAVE FAILURE FLAGS .

COMPONENT NO.		3	6	14	15	16	17	18	19
SUBR. TYPE		SHOWER	WASDRY	FLOMET	GASMIX	FAN	SPLIT	SPLIT	ALTCOM
VR									
1-TOTAL PRI FLOW	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
2-TEMPERATURE	R	105.000	89.8952	.000000	.000000	.000000	.000000	.000000	.000000
3-DUCT OUTLET P	I	14.8000	.000000	14.8000	.000000	14.8000	14.8000	14.8000	14.8000
4-COMP OUTLET P	M	14.8000	.000000	14.8000	.000000	14.8000	14.8000	14.8000	14.8000
5-NON-COND FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
6-COND VAP FLOW	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
7-COND LIQ FLOW	Y	.241200	.000000	.241200	.000000	.000000	.241200	.241200	.241200
8-N-C SP HEAT		.241200	.000000	.241200	.000000	.000000	.241200	.241200	.241200
9-N-C MOL WT	S	28.9120	.000000	28.9120	.000000	.000000	28.9120	28.9120	28.9120
10-OXYGEN FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
11-DILUENT FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
12-CO2 FLOW	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
13-TRACE CTM FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
14-SPCL FLOW 1	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
15-SPCL FLOW 2	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
16-SPCL FLOW 3	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
17-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
18-SPCL FLOW 5		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
19-SPCL FLOW 6		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
20-TOTAL SEC FLOW	S	.000000	.000000	16.3490	.000000	.000000	.000000	.000000	.000000
21-TEMPERATURE	E	.000000	89.8952	31.5799	.000000	.000000	.000000	.000000	.000000
22-DUCT OUTLET P	C	.000000	14.7000	13.9901	.000000	.000000	.000000	.000000	.000000
23-COMP OUTLET P	O	.000000	.000000	13.9901	.000000	.000000	.000000	.000000	.000000
24-NON-COND FLOW	N	.000000	.000000	16.0549	.000000	.000000	.000000	.000000	.000000
25-COND VAP FLOW	D	.000000	.000000	.294132	.000000	.000000	.000000	.000000	.000000
26-COND LIQ FLOW	A	.000000	.000000	.000000	.000000	.000000	.241200	.000000	.000000
27-N-C SP HEAT	R	.000000	.000000	.220962	.000000	.000000	28.9120	28.9120	.000000
28-N-C MOL WT	Y	.000000	.000000	[illegible]025	.000000	.000000	.000000	.000000	.000000
29-OXYGEN FLOW		.000000	.000000	[illegible]007	.000000	.000000	.000000	.000000	.000000
30-DILUENT FLOW	S	.000000	.000000	12.2562	.000000	.000000	.000000	.000000	.000000
31-CO2 FLOW	I	.000000	.000000	.116597	.000000	.000000	.000000	.000000	.000000
32-TRACE CTM FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
33-SPCL FLOW 1	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
34-SPCL FLOW 2		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
35-SPCL FLOW 3	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
36-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
37-SPCL FLOW 5	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
38-SPCL FLOW 6	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
39-DH, C, DP PRI	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
40-LE, N, K DUCT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
41-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
42-DH, C, DP PRI	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
43-LE, N, K COMP	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
44-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
45-DH, C, DP SEC	C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
46-LE, N, K DUCT	O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
47-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
48-DH, C, DP SEC	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
49-LE, N, K COMP		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
50-FF AREA		.000000							
51-COMP SOURCE TEMP		70.0194	86.1713	.001000	.000000	.000000	.000000	.000000	.000000

52-EFF SUMMED COND	58.2584	8.06665	.000000	.000000	.000000	.000000	.000000	.000000
53-COMP QTOTOL LOSS	1.30454	132.212	.000000	.000000	.000000	.000000	.000000	.000000
54-AMBIENT GAS TEMP	70.0000	70.0000	.000000	.000000	.000000	.000000	.000000	.000000
55-AMBIENT UA	14.0000	3.00000	.000000	.000000	.000000	.000000	.000000	.000000
56-AMB CONV Q LOSS	.313492	49.1720	.000000	.000000	.000000	.000000	.000000	.000000
57-AMB WALL TEMP	70.0000	70.0000	.000000	.000000	.000000	.000000	.000000	.000000
58-AMB SCRIPT(F)*A	14.0000	1.00000	.000000	.000000	.000000	.000000	.000000	.000000
59-AMB RAD Q LOSS	.319278	17.4824	.000000	.000000	.000000	.000000	.000000	.000000
60-STRUCTURE TEMP	70.0000	70.0000	.000000	.000000	.000000	.000000	.000000	.000000
61-STRUCTURE KA/X	30.0000	4.00000	.000000	.000000	.000000	.000000	.000000	.000000
62-STRUCTURE Q LOSS	.671768	65.5599	.000000	.000000	.000000	.000000	.000000	.000000
63-INSULATION TEMP	70.0224	86.3980	.000000	.000000	.000000	.000000	.000000	.000000
64-INSULATION KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000

SUBROUTINE DEPENDENT V ARRAY DATA - - -

VR(3, 65)=	.00000	VR(3, 66)=	650.00	VR(3, 67)=	.00000	VR(3, 68)=	.90000	VR(3, 69)=	39.000
VR(3, 70)=	.00000	VR(3, 71)=	13.000	VR(3, 72)=	4.2119	VR(3, 73)=	2.9600	VR(3, 74)=	4.5000
VR(3, 75)=	1.0000	VR(3, 76)=	24.000	VR(3, 77)=	80.000	VR(3, 78)=	16.575	VR(3, 79)=	.80000
VR(3, 80)=	1.0000	VR(3, 81)=	46.000	VR(3, 82)=	1.0000	VR(3, 83)=	.00000	VR(3, 84)=	10.000
VR(3, 85)=	170.00	VR(3, 86)=	10.000	VR(3, 87)=	80.000	VR(3, 88)=	.55628	VR(3, 89)=	.00000
VR(3, 90)=	.00000	VR(3, 91)=	.00000	VR(3, 92)=	.00000	VR(3, 93)=	.00000	VR(3, 94)=	.00000
VR(6, 65)=	.00000	VR(6, 66)=	4.0000	VR(6, 67)=	.00000	VR(6, 68)=	60.000	VR(6, 69)=	.00000
VR(6, 70)=	150.00	VR(6, 71)=	.00000	VR(6, 72)=	89.895	VR(6, 73)=	.00000	VR(6, 74)=	.00000
VR(6, 75)=	.20000	VR(6, 76)=	12.000	VR(6, 77)=	.25000	VR(6, 78)=	.50000-01	VR(6, 79)=	240.00
VR(6, 80)=	3354.6	VR(6, 81)=	8.0000	VR(6, 82)=	16.000	VR(6, 83)=	120.00	VR(6, 84)=	.00000
VR(6, 85)=	.00000	VR(6, 86)=	.80000	VR(6, 87)=	10.000	VR(6, 88)=	1.0000	VR(6, 89)=	.40000
VR(6, 90)=	.00000	VR(6, 91)=	.42095	VR(6, 92)=	.00000	VR(6, 93)=	.00000	VR(6, 94)=	.19745-01
VR(6, 95)=	.00000	VR(6, 96)=	.19758	VR(6, 97)=	30.000	VR(6, 98)=	30.000	VR(6, 99)=	32.000
VR(6,100)=	37.500	VR(6,101)=	.00000	VR(6,102)=	55.000	VR(6,103)=	55.000	VR(6,104)=	.25000-01
VR(6,105)=	10.000	VR(6,106)=	4.0000	VR(6,107)=	10.000	VR(6,108)=	1.0000	VR(6,109)=	.20000
VR(6,110)=	12.000	VR(6,111)=	.00000	VR(6,112)=	.00000	VR(6,113)=	.00000	VR(6,114)=	.00000
VR(6,115)=	.00000	VR(6,116)=	.00000	VR(6,117)=	.00000	VR(14, 65)=	.00000	VR(14, 66)=	923.06
VR(14, 67)=	335.66	VR(14, 68)=	45.275	VR(14, 69)=	44.151	VR(14, 70)=	.88886	VR(14, 71)=	.00000
VR(14, 72)=	10.120	VR(14, 73)=	33.705	VR(14, 74)=	.32614	VR(14, 75)=	.00000	VR(14, 76)=	.00000
VR(14, 77)=	.00000	VR(15, 65)=	68.529	VR(16, 65)=	.00000	VR(16, 66)=	.00000	VR(16, 67)=	.00000
VR(16, 68)=	.00000	VR(16, 69)=	.00000	VR(16, 70)=	.00000	VR(16, 71)=	.00000	VR(16, 72)=	.00000
VR(16, 73)=	.00000	VR(16, 74)=	.00000	VR(16, 75)=	.00000	VR(16, 76)=	.00000	VR(16, 77)=	.00000
VR(16, 78)=	.00000	VR(16, 79)=	.00000	VR(16, 80)=	.00000	VR(16, 81)=	.00000	VR(16, 82)=	.00000
VR(16, 83)=	.00000	VR(16, 84)=	.00000	VR(16, 85)=	.00000	VR(16, 86)=	.00000	VR(16, 87)=	.00000
VR(16, 88)=	.00000	VR(16, 89)=	.00000	VR(16, 90)=	.00000	VR(16, 91)=	26.400	VR(16, 92)=	.00000
VR(16, 93)=	.00000	VR(16, 94)=	.00000	VR(16, 95)=	.00000	VR(16, 96)=	.00000	VR(17, 65)=	.12570
VR(18, 65)=	.19520	VR(19, 65)=	.00000	VR(19, 66)=	105.00	VR(			

COMPONENT NO. =	3	6	14	15	16	17	18	19
SUBR. TYPE =	SHOWER	WASDRY	FLOMET	GASMIX	FAN	SPLIT	SPLIT	ALTCOX
KR 1-SUBR NO./EXV/EXK	67004000	70005000	29013000	6000000	23000000	10000000	10000000	49000000
2-PRI SOR/FLO CODE	1902	3000	-1802	7102	1502	1602	1702	1802
3-PRI SPFL TYP 1-3	0	10000	0	0	0	0	0	0
4-PRI SPFL TYP 4-6	0	0	0	0	0	0	0	0
5-SEC SOR/FLO CODE	-2200	-2602	2	2002	0	2	2	0

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6-SEC SPFL TYP 1-3	10000	0	0	0	0	0	0	0
7-SEC SPFL TYP 4-6	0	0	0	0	0	0	0	0
8-NEXT COMP/CABIN	2400000	2700000	2300000	1600000	1700000	1800000	1900000	300000
9-COMP NSTR 1-9	0	23010000	100000000	200000000	3000000	0	0	100000000
10-COMP NSTR 10-18	0	0	0	0	0	0	0	0
11-NCFL/NLFL/NPASS	566	401	195	566	566	566	566	566
12-PRI VISC/DENSITY	0	0	0	0	0	0	0	0
13-PRI OP/DP/OP/DP	0	0	0	0	0	0	0	0
14-SEC VISC/DENSITY	0	0	0	0	0	0	0	0
15-SEC OP/DP/OP/DP	0	0	0	0	0	0	0	0

SUBROUTINE DEPENDENT K ARRAY DATA - - -

KR(3, 16)= -1 KR(6, 16)= 0 KR(6, 17)= 1 KR(6, 18)= 0 KR(16, 16)= 0
KR(16, 17)= 0 KR(16, 18)= 0 KR(

COMPONENT NO. = / SUBR. TYPE =		20 ALTCOM	21 ALTCOM	22 ALTCOM	23 PUMP	24 GASMIX	25 FAN	26 ALTCOM	27 ALTCOM
VR									
1-TOTAL PRI FLOW	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
2-TEMPERATURE	R	.000000	.000000	105.000	.000000	.000000	89.8952	69.7560	89.8952
3-DUCT OUTLET P	I	.000000	.000000	45.0000	.722600-01	.000000	-.541950-01	14.7000	14.7000
4-COMP OUTLET P	M	.000000	-.722600-01	45.0000	.722600-01	.000000	.903250-01	14.7000	-.541950-01
5-NON-COND FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
6-COND VAP FLOW	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
7-COND LIQ FLOW	Y	.000000	.000000	.000000	.000000	.000000	.241294	.241294	.000000
8-N-C SP HEAT		.000000	.000000	.000000	.000000	.000000	28.8851	28.8851	.000000
9-N-C MOL WT	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
10-OXYGEN FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
11-DILUENT FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
12-CO2 FLOW	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
13-TRACE CTM FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
14-SPCL FLOW 1	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
15-SPCL FLOW 2	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
16-SPCL FLOW 3	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
17-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
18-SPCL FLOW 5		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
19-SPCL FLOW 6		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
20-TOTAL SEC FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
21-TEMPERATURE	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
22-DUCT OUTLET P	C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
23-COMP OUTLET P	O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
24-NON-COND FLOW	N	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
25-COND VAP FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
26-COND LIQ FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
27-N-C SP HEAT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
28-N-C MOL WT	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
29-OXYGEN FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
30-DILUENT FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
31-CO2 FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
32-TRACE CTM FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
33-SPCL FLOW 1	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
34-SPCL FLOW 2		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
35-SPCL FLOW 3	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
36-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
37-SPCL FLOW 5	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
38-SPCL FLOW 6	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
39-DH, C, DP PRI	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
40-LE, N, K DUCT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
41-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
42-DH, C, DP PRI	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
43-LE, N, K COMP	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
44-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
45-DH, C, DP SEC	C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
46-LE, N, K DUCT	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
47-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
48-DH, C, DP SEC	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
49-LE, N, K COMP	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
50-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
51-COMP SOURCE TEMP		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000

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52-EFF SUMMED COND	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
53-COMP QTOTOL LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
54-AMBIENT GAS TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
55-AMBIENT UA	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
56-AMB CONV Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
57-AMB WALL TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
58-AMB SCRIPT(F)*A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
59-AMB RAD Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
60-STRUCTURE TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
61-STRUCTURE KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
62-STRUCTURE Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
63-INSULATION TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
64-INSULATION KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000

SUBROUTINE DEPENDENT V ARRAY DATA - - -

VR(20, 65)=	.00000	VR(20, 66)=	.00000	VR(21, 65)=	.00000	VR(21, 66)=	.00000	VR(22, 65)=	.00000
VR(22, 66)=	105.00	VR(23, 65)=	.00000	VR(23, 66)=	.00000	VR(23, 67)=	.00000	VR(23, 68)=	.00000
VR(23, 69)=	.00000	VR(23, 70)=	.00000	VR(23, 71)=	.00000	VR(23, 72)=	.00000	VR(23, 73)=	.00000
VR(23, 74)=	.00000	VR(23, 75)=	.00000	VR(23, 76)=	.00000	VR(23, 77)=	.00000	VR(23, 78)=	.00000
VR(23, 79)=	.00000	VR(23, 80)=	.00000	VR(23, 81)=	.00000	VR(23, 82)=	.00000	VR(23, 83)=	.00000
VR(23, 84)=	.00000	VR(23, 85)=	17.300	VR(24, 65)=	68.520	VR(25, 66)=	.00000	VR(25, 66)=	.00000
VR(25, 67)=	.00000	VR(25, 68)=	.00000	VR(25, 69)=	.00000	VR(25, 70)=	.00000	VR(25, 71)=	.00000
VR(25, 72)=	.00000	VR(25, 73)=	.00000	VR(25, 74)=	.00000	VR(25, 75)=	.00000	VR(25, 76)=	.00000
VR(25, 77)=	.00000	VR(25, 78)=	.00000	VR(25, 79)=	.00000	VR(25, 80)=	.00000	VR(25, 81)=	.00000
VR(25, 82)=	.00000	VR(25, 83)=	.00000	VR(25, 84)=	.00000	VR(25, 85)=	.00000	VR(25, 86)=	.00000
VR(25, 87)=	.00000	VR(25, 88)=	.00000	VR(25, 89)=	.00000	VR(25, 90)=	.00000	VR(25, 91)=	20.300
VR(25, 92)=	.00000	VR(25, 93)=	.00000	VR(25, 94)=	.00000	VR(25, 95)=	.00000	VR(25, 96)=	.00000
VR(26, 65)=	240.00	VR(26, 66)=	.00000	VR(27, 65)=	.00000	VR(27, 66)=	.00000	VR(	

COMPONENT NO. =	20	21	22	23	24	25	26	27
SUBR. TYPE =	ALTCOM	ALTCOM	ALTCOM	PUMP	GASMIX	FAN	ALTCOM	ALTCOM
KR								
1-SUBR NO./EXV/EXK	49000000	49000000	49000000	22000000	6000000	23000000	49000000	49000000
2-PRI SOR/FLO CODE	0	2000	8600	2100	302	7702	7302	-602
3-PRI SPFL TYP 1-3	10000	10000	10000	10000	0	0	0	0
4-PRI SPFL TYP 4-6	0	0	0	0	0	0	0	0
5-SEC SOR/FLO CODE	-2402	0	0	0	1702	0	0	0
6-SEC SPFL TYP 1-3	0	0	0	0	0	0	0	0
7-SEC SPFL TYP 4-6	0	0	0	0	0	0	0	0
8-NEXT COMP/CABIN	2100000	1400000	1500000	12000000	2000000	6500000	3500000	2500000
9-COMP NSTR 1-9	0	0	100000000	200000	100000000	3000000	200000000	0
10-COMP NSTR 10-18	0	0	0	0	0	0	0	0
11-NCFL/NLFL/NPASS	566	195	485	485	566	401	401	401
12-PRI VISC/DENSITY	0	0	0	0	0	0	0	0
13-PRI DP/DP/DP/DP	0	0	0	0	0	0	0	0
14-SEC VISC/DENSITY	0	0	0	0	0	0	0	0

15-SEC OP/DP/OP/DP 0 0 0 0 0 0 0 0

SUBROUTINE DEPENDENT K ARRAY DATA - - -

KR(23, 16)= 0 KR(23, 17)= 0 KR(25, 16)= 0 KR(25, 17)= 0 KR(25, 18)= 0

COMPONENT NO. * / SUBR. TYPE =	28 LIQMIX	29 ALTCOM	30 ALTCOM	31 LIQMIX	32 PUMP	33 SPLIT	34 SPLIT	35 TANKG
VR								
1-TOTAL PRI FLOW P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
2-TEMPERATURE R	.000000	155.000	155.000	.000000	.000000	.000000	.000000	142.324
3-DUCT OUTLET P I	.000000	.000000	.000000	.000000	.000000	2.800000	2.800000	2.800000
4-COMP OUTLET P M	.000000	.000000	.000000	.000000	2.800000	2.800000	2.800000	2.800000
5-NON-COND FLOW A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
6-COND VAP FLOW R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
7-COND LIQ FLOW Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
8-N-C SP HEAT	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
9-N-C MOL WT S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
10-OXYGEN FLOW	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
11-DILUENT FLOW I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
12-CO2 FLOW E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
13-TRACE CTM FLOW	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
14-SPCL FLOW 1 D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
15-SPCL FLOW 2 A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
16-SPCL FLOW 3 T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
17-SPCL FLOW 4 A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
18-SPCL FLOW 5	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
19-SPCL FLOW 6	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
20-TOTAL SEC FLOW S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
21-TEMPERATURE E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
22-DUCT OUTLET P C	.000000	.000000	.000000	.000000	.000000	2.800000	2.800000	.000000
23-COMP OUTLET P O	.000000	.000000	.000000	.000000	.000000	2.800000	2.800000	.000000
24-NON-COND FLOW N	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
25-COND VAP FLOW D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
26-COND LIQ FLOW A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
27-N-C SP HEAT R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
28-N-C MOL WT Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
29-OXYGEN FLOW	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
30-DILUENT FLOW S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
31-CO2 FLOW I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
32-TRACE CTM FLOW E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
33-SPCL FLOW 1	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
34-SPCL FLOW 2 D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
35-SPCL FLOW 3 A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
36-SPCL FLOW 4 T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
37-SPCL FLOW 5 A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
38-SPCL FLOW 6	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
39-DH, C, DP PRI P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
40-LE, N, K DUCT R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
41-FF AREA E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
42-DH, C, DP PRI S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
43-LE, N, K COMP S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
44-FF AREA	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
45-DH, C, DP SEC C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
46-LE, N, K DUCT O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
47-FF AREA E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
48-DH, C, DP SEC F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
49-LE, N, K COMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
50-FF AREA	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
51-COMP SOURCE TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	95.1415

52-EFF SUMMED COND	.000000	.000000	.000000	.000000	.000000	.000000	.000000	4.00000
53-COMP QTOTOL LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	80.6018
54-AMBIENT GAS TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
55-AMBIENT UA	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
56-AMB CONV Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
57-AMB WALL TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
58-AMB SCRIPT(F)=A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
59-AMB RAD Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
60-STRUCTURE TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	75.0000
61-STRUCTURE KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	4.00000
62-STRUCTURE Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	80.6018
63-INSULATION TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	95.1505
64-INSULATION KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000

SUBROUTINE DEPENDENT V ARRAY DATA - - -

VR(29, 65)=	.00000	VR(29, 66)=	155.00	VR(30, 65)=	.00000	VR(30, 66)=	.00000	VR(32, 65)=	.00000
VR(32, 66)=	.00000	VR(32, 67)=	.00000	VR(32, 68)=	.00000	VR(32, 69)=	.00000	VR(32, 70)=	.00000
VR(32, 71)=	.00000	VR(32, 72)=	.00000	VR(32, 73)=	.00000	VR(32, 74)=	.00000	VR(32, 75)=	.00000
VR(32, 76)=	.00000	VR(32, 77)=	.00000	VR(32, 78)=	.00000	VR(32, 79)=	.00000	VR(32, 80)=	.00000
VR(32, 81)=	.00000	VR(32, 82)=	.00000	VR(32, 83)=	.00000	VR(32, 84)=	.00000	VR(32, 85)=	10.0000
VR(33, 65)=	1.0000	VR(34, 65)=	.00000	VR(35, 65)=	.00000	VR(35, 66)=	.00000	VR(35, 67)=	.00000
VR(35, 68)=	70.000	VR(35, 69)=	59.445	VR(35, 70)=	148.32	VR(35, 71)=	.00000	VR(35, 72)=	18.000
VR(35, 73)=	.00000	VR(35, 74)=	.00000	VR(35, 75)=	.00000	VR(35, 76)=	.00000	VR(35, 77)=	.00000
VR(35, 78)=	.00000	VR(35, 79)=	.00000	VR(35, 80)=	.00000	VR(35, 81)=	.00000	VR(35, 82)=	.00000
VR(35, 83)=	.00000	VR(35, 84)=	.00000	VR(35, 85)=	.00000	VR(35, 86)=	.00000	VR(35, 87)=	.00000
VR(35, 88)=	1.0000	VR(35, 89)=	62.400	VR(35, 90)=	1.4000	VR(35, 91)=	18.000	VR(35, 92)=	2.7000
VR(35, 93)=	1.5000	VR(35, 94)=	4.0000	VR(35, 95)=	.00000	VR(35, 96)=	.00000	VR(35, 97)=	.00000

COMPONENT NO. =	28	29	30	31	32	33	34	35
SUBR, TYPE =	LIQMIX	ALTCOM	ALTCOM	LIQMIX	PUMP	SPLIT	SPLIT	TANKG
KR								
1-SUBR NO./EXV/EXK	7000000	49000000	49000000	7000000	22000000	10000000	10000000	30000000
2-PRI SOR/FLO CODE	8700	2800	2900	600	3100	3200	3300	3400
3-PRI SPFL TYP 1-3	10000	10000	10000	10000	10000	10000	10000	10000
4-PRI SPFL TYP 4-6	0	0	0	0	0	0	0	0
5-SEC SOR/FLO CODE	3300	0	0	-3500	0	0	0	0
6-SEC SPFL TYP 1-3	10000	0	0	10000	0	10000	10000	0
7-SEC SPFL TYP 4-6	0	0	0	0	0	0	0	0
8-NEXT COMP/CABIN	2900000	3000000	600000	3200000	3300000	3400000	2800000	3100000
9-COMP NSTR 1-9	0	100000000	0	0	200000	0	0	101000000
10-COMP NSTR 10-18	0	0	0	0	0	0	0	0
11-NCFL/NLFL/NPASS	146	146	146	146	146	146	146	401
12-PRI VISC/DENSITY	0	0	0	0	0	0	0	0
13-PRI OP/DP/OP/DP	0	0	0	0	0	0	0	0
14-SEC VISC/DENSITY	0	0	0	0	0	0	0	0
15-SEC OP/DP/OP/DP	0	0	0	0	0	0	0	0

SUBROUTINE DEPENDENT K ARRAY DATA - - -

KR(32, 16)= 0 KR(32, 17)= 0 KR(

COMPONENT NO.		40	41	42	43	44	45	46	47
SUBR. TYPE		ALTCOM	TANKG	LIQMIX	PUMP	SPLIT	SPLIT	LIQMIX	ALTCOM
VR									
1-TOTAL PRI FLOW	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
2-TEMPERATURE	R	69.4101	143.252	.000000	.000000	.000000	.000000	.000000	155.000
3-DUCT OUTLET P	I	14.7000	2.80000	.000000	.000000	2.80000	2.80000	.000000	.000000
4-COMP OUTLET P	M	14.7000	18.0000	.000000	2.80000	2.80000	2.80000	.000000	.000000
5-NON-COND FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
6-COND VAP FLOW	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
7-COND LIQ FLOW	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
8-N-C SP HEAT		.241294	.000000	.000000	.000000	.000000	.000000	.000000	.000000
9-N-C MOL WT	S	28.6851	.000000	.000000	.000000	.000000	.000000	.000000	.000000
10-OXYGEN FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
11-DILUENT FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
12-CO2 FLOW	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
13-TRACE CTM FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
14-SPCL FLOW 1	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
15-SPCL FLOW 2	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
16-SPCL FLOW 3	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
17-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
18-SPCL FLOW 5		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
19-SPCL FLOW 6		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
20-TOTAL SEC FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
21-TEMPERATURE	E	.000000	.000000	.000000	.000000	2.80000	2.80000	.000000	.000000
22-DUCT OUTLET P	C	.000000	.000000	.000000	.000000	2.80000	2.80000	.000000	.000000
23-COMP OUTLET P	O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
24-NON-COND FLOW	N	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
25-COND VAP FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
26-COND LIQ FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
27-N-C SP HEAT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
28-N-C MOL WT	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
29-OXYGEN FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
30-DILUENT FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
31-CO2 FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
32-TRACE CTM FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
33-SPCL FLOW 1	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
34-SPCL FLOW 2		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
35-SPCL FLOW 3	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
36-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
37-SPCL FLOW 5	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
38-SPCL FLOW 6	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
39-DH, C, DP PRI	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
40-LE, N, K DUCT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
41-FF AREA	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
42-DH, C, DP PRI	M	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
43-LE, N, K COMP	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
44-FF AREA	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
45-DH, C, DP SEC	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
46-LE, N, K DUCT	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
47-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
48-DH, C, DP SEC	C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
49-LE, N, K COMP	O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
50-FF AREA	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
51-COMP SOURCE TEMP	F	.000000	94.6603	.000000	.000000	.000000	.000000	.000000	.000000

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52-EFF SUMMED COND	.000000	1.50000	.000000	.000000	.000000	.000000	.000000	.000000
53-COMP QTOTOL LOSS	.000000	29.5063	.000000	.000000	.000000	.000000	.000000	.000000
54-AMBIENT GAS TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
55-AMBIENT UA	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
56-AMB CONV Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
57-AMB WALL TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
58-AMB SCRIPT(F)*A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
59-AMB RAD Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
60-STRUCTURE TEMP	.000000	75.0000	.000000	.000000	.000000	.000000	.000000	.000000
61-STRUCTURE KA/X	.000000	1.50000	.000000	.000000	.000000	.000000	.000000	.000000
62-STRUCTURE Q LOSS	.000000	29.5063	.000000	.000000	.000000	.000000	.000000	.000000
63-INSULATION TEMP	.000000	94.6708	.000000	.000000	.000000	.000000	.000000	.000000
64-INSULATION KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000

SUBROUTINE DEPENDENT V ARRAY DATA - - -

VR(40, 65)=	760.00	VR(40, 66)=	.00000	VR(41, 65)=	.00000	VR(41, 66)=	.00000	VR(41, 67)=	.00000
VR(41, 68)=	20.000	VR(41, 69)=	19.990	VR(41, 70)=	143.25	VR(41, 71)=	.00000	VR(41, 72)=	18.000
VR(41, 73)=	.00000	VR(41, 74)=	.00000	VR(41, 75)=	.00000	VR(41, 76)=	.00000	VR(41, 77)=	.00000
VR(41, 78)=	.00000	VR(41, 79)=	.00000	VR(41, 80)=	.00000	VR(41, 81)=	.00000	VR(41, 82)=	.00000
VR(41, 83)=	.00000	VR(41, 84)=	.00000	VR(41, 85)=	.00000	VR(41, 86)=	.00000	VR(41, 87)=	.00000
VR(41, 88)=	1.0000	VR(41, 89)=	62.400	VR(41, 90)=	1.4000	VR(41, 91)=	18.000	VR(41, 92)=	.80000
VR(41, 93)=	.60000	VR(41, 94)=	4.0000	VR(41, 95)=	.00000	VR(41, 96)=	.00000	VR(41, 97)=	.00000
VR(43, 65)=	.00000	VR(43, 66)=	.00000	VR(43, 67)=	.00000	VR(43, 68)=	.00000	VR(43, 69)=	.00000
VR(43, 70)=	.00000	VR(43, 71)=	.00000	VR(43, 72)=	.00000	VR(43, 73)=	.00000	VR(43, 74)=	.00000
VR(43, 75)=	.00000	VR(43, 76)=	.00000	VR(43, 77)=	.00000	VR(43, 78)=	.00000	VR(43, 79)=	.00000
VR(43, 80)=	.00000	VR(43, 81)=	.00000	VR(43, 82)=	.00000	VR(43, 83)=	.00000	VR(43, 84)=	.00000
VR(43, 85)=	6.2500	VR(44, 65)=	1.0000	VR(45, 65)=	.00000	VR(47, 65)=	.00000	VR(47, 66)=	155.00

COMPONENT NO. = / SUBR. TYPE =	40 ALTCOM	41 TANKG	42 LIQMIX	43 PUMP	44 SPLIT	45 SPLIT	46 LIQMIX	47 ALTCOM
KR 1-SUBR NO./EXV/EXK	49000000	38000000	7000000	22000000	10000000	10000000	7000000	49000000
2-PRI SOR/FLO CODE	6302	-4500	4900	4200	4300	-4400	-8700	4600
3-PRI SPFL TYP 1-3	0	10000	10000	10000	10000	10000	10000	10000
4-PRI SPFL TYP 4-6	0	0	0	0	0	0	0	0
5-SEC SOR/FLO CODE	0	0	-4100	0	0	0	4400	0
6-SEC SPFL TYP 1-3	0	0	10000	0	10000	10000	10000	0
7-SEC SPFL TYP 4-6	0	0	0	0	0	0	0	0
8-NEXT COMP/CABIN	4100000	4200000	4300000	4400000	4500000	4600000	4700000	4800000
9-COMP NSTR 1-9	200000000	101100000	0	200000	0	0	0	100000000
10-COMP NSTR 10-18	0	0	0	0	0	0	0	0
11-NCFL/NLFL/NPASS	401	401	112	112	112	112	112	112
12-PRI VISC/DENSITY	0	0	0	0	0	0	0	0
13-PRI OP/DP/OP/DP	0	0	0	0	0	0	0	0
14-SEC VISC/DENSITY	0	0	0	0	0	0	0	0
15-SEC OP/DP/OP/DP	0	0	0	0	0	0	0	0

SUBROUTINE DEPENDENT K ARRAY DATA - - -

KR(43, 16)= 0 KR(43, 17)= 0 KR(

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COMPONENT NO. =		48	49	50	51	55	56	58	60
SUBR. TYPE =		ALTCOM	WASDRY	ALTCOM	FAN	ALTCOM	SPLIT	CMAN	CABIN
VR									
1-TOTAL PRI FLOW	P	.000000	.000000	.000000	.000000	.000000	1278.00	1278.00	832.000
2-TEMPERATURE	R	155.000	89.9821	89.9821	89.9821	65.0000	65.0000	65.0000	69.4101
3-DUCT OUTLET P	I	.000000	.190000	14.7000	14.6097	.000000	14.7000	14.7000	14.7003
4-COMP OUTLET P		.190000	.000000	14.6097	14.8517	.000000	14.7000	14.7000	827.117
5-NON-COND FLOW	M	.000000	.000000	.000000	.000000	.000000	1270.50	1270.50	4.88265
6-COND VAP FLOW	A	.000000	.000000	.000000	.000000	15.0000	7.50000	7.50000	.000000
7-COND LIQ FLOW	R	.000000	.000000	.000000	.241294	.000000	.000000	.000000	.241294
8-N-C SP HEAT	Y	.000000	.000000	.000000	.242500	.241294	.241294	.241294	28.8851
9-N-C MOL WT		.000000	.000000	.000000	28.8851	28.9700	28.8851	28.8851	191.399
10-OXYGEN FLOW	S	.000000	.000000	.000000	.000000	588.000	294.000	294.000	631.812
11-DILUENT FLOW	I	.000000	.000000	.000000	.000000	1941.00	970.500	970.500	3.90611
12-CO2 FLOW	D	.000000	.000000	.000000	.000000	12.0000	6.00000	6.00000	.000000
13-TRACE CTM FLOW	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
14-SPCL FLOW 1		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
15-SPCL FLOW 2	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
16-SPCL FLOW 3	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
17-SPCL FLOW 4	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
18-SPCL FLOW 5	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
19-SPCL FLOW 6		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
20-TOTAL SEC FLOW	S	.000000	.000000	.000000	.000000	.000000	1278.00	.000000	1278.00
21-TEMPERATURE	E	.000000	89.9821	.000000	.000000	.000000	65.0000	.000000	69.4101
22-DUCT OUTLET P	C	.000000	14.7000	.000000	.000000	.000000	14.7000	.000000	14.7003
23-COMP OUTLET P	O	.000000	.000000	.000000	.000000	.000000	14.7000	.000000	14.7003
24-NON-COND FLOW	N	.000000	.000000	.000000	.000000	.000000	1270.50	.000000	1270.50
25-COND VAP FLOW	D	.000000	.000000	.000000	.000000	.000000	7.50000	.000000	7.50000
26-COND LIQ FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
27-N-C SP HEAT	R	.000000	.000000	.000000	.000000	.000000	.241294	.000000	.241294
28-N-C MOL WT	Y	.000000	.000000	.000000	.000000	.000000	28.8851	.000000	28.8851
29-OXYGEN FLOW		.000000	.000000	.000000	.000000	.000000	294.000	.000000	294.000
30-DILUENT FLOW	S	.000000	.000000	.000000	.000000	.000000	970.500	.000000	970.500
31-CO2 FLOW	I	.000000	.000000	.000000	.000000	.000000	6.00000	.000000	6.00001
32-TRACE CTM FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
33-SPCL FLOW 1	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
34-SPCL FLOW 2		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
35-SPCL FLOW 3	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
36-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
37-SPCL FLOW 5	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
38-SPCL FLOW 6	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
39-DH, C, DP PRI	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
40-LE, N, K DUCT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
41-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
42-DH, C, DP PRI	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
43-LE, N, K COMP	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
44-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
45-DH, C, DP SEC	C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
46-LE, N, K DUCT	O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
47-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
48-DH, C, DP SEC	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
49-LE, N, K COMP		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
50-FF AREA		.000000							
51-COMP SOURCE TEMP		.000000	84.8654	.000000	.000000	.000000	.000000	.000000	.000000

52-EFF SUMMED COND	.000000	8.06252	.000000	.000000	.000000	.000000	.000000	.000000	.000000
53-COMP QTOTOL LOSS	.000000	121.042	.000000	.000000	.000000	.000000	.000000	.000000	.000000
54-AMBIENT GAS TEMP	.000000	70.0000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
55-AMBIENT UA	.000000	3.00000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
56-AMB CONV Q LOSS	.000000	45.0388	.000000	.000000	.000000	.000000	.000000	.000000	.000000
57-AMB WALL TEMP	.000000	70.0000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
58-AMB SCRIPT(F)*A	.000000	1.00000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
59-AMB RAD Q LOSS	.000000	15.9515	.000000	.000000	.000000	.000000	.000000	.000000	.000000
60-STRUCTURE TEMP	.000000	70.0000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
61-STRUCTURE KA/X	.000000	4.00000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
62-STRUCTURE Q LOSS	.000000	60.0518	.000000	.000000	.000000	.000000	.000000	.000000	.000000
63-INSULATION TEMP	.000000	85.0129	.000000	.000000	.000000	.000000	.000000	.000000	.000000
64-INSULATION KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000

SUBROUTINE DEPENDENT V ARRAY DATA - - -

VR(48, 65)=	.00000	VR(48, 66)=	.00000	VR(49, 65)=	.00000	VR(49, 66)=	15.200	VR(49, 67)=	.00000
VR(49, 68)=	50.000	VR(49, 69)=	.00000	VR(49, 70)=	150.00	VR(49, 71)=	.00000	VR(49, 72)=	89.982
VR(49, 73)=	.00000	VR(49, 74)=	.00000	VR(49, 75)=	.25000	VR(49, 76)=	12.000	VR(49, 77)=	.25000
VR(49, 78)=	.10000-03	VR(49, 79)=	90.000	VR(49, 80)=	10587.	VR(49, 81)=	R.0000	VR(49, 82)=	16.000
VR(49, 83)=	120.00	VR(49, 84)=	.00000	VR(49, 85)=	.00000	VR(49, 86)=	.00000	VR(49, 87)=	.45000
VR(49, 88)=	1.0000	VR(49, 89)=	.40000	VR(49, 90)=	.00000	VR(49, 91)=	.14564	VR(49, 92)=	.00000
VR(49, 93)=	.00000	VR(49, 94)=	.19740-01	VR(49, 95)=	.00000	VR(49, 96)=	.14965-02	VR(49, 97)=	30.000
VR(49, 98)=	30.000	VR(49, 99)=	32.500	VR(49,100)=	37.000	VR(49,101)=	.00000	VR(49,102)=	15.000
VR(49,103)=	15.000	VR(49,104)=	.25000-01	VR(49,105)=	10.000	VR(49,106)=	R.0000	VR(49,107)=	10.000
VR(49,108)=	-1.0000	VR(49,109)=	.10000-01	VR(49,110)=	6.0000	VR(49,111)=	.00000	VR(49,112)=	.00000
VR(42,113)=	.00000	VR(49,114)=	.00000	VR(49,115)=	.00000	VR(49,116)=	.00000	VR(49,117)=	.00000
VR(50, 65)=	.00000	VR(50, 66)=	.00000	VR(51, 65)=	.00000	VR(51, 66)=	.00000	VR(51, 67)=	.00000
VR(51, 68)=	.00000	VR(51, 69)=	.00000	VR(51, 70)=	.00000	VR(51, 71)=	.00000	VR(51, 72)=	.00000
VR(51, 73)=	.00000	VR(51, 74)=	.00000	VR(51, 75)=	.00000	VR(51, 76)=	.00000	VR(51, 77)=	.00000
VR(51, 78)=	.00000	VR(51, 79)=	.00000	VR(51, 80)=	.00000	VR(51, 81)=	.00000	VR(51, 82)=	.00000
VR(51, 83)=	.00000	VR(51, 84)=	.00000	VR(51, 85)=	.00000	VR(51, 86)=	.00000	VR(51, 87)=	.00000
VR(51, 88)=	.00000	VR(51, 89)=	.00000	VR(51, 90)=	.00000	VR(51, 91)=	33.900	VR(51, 92)=	.00000
VR(51, 93)=	.00000	VR(51, 94)=	.00000	VR(51, 95)=	.00000	VR(51, 96)=	.00000	VR(55, 65)=	.00000
VR(55, 66)=	.00000	VR(56, 65)=	.50000	VR(58, 65)=	.00000	VR(58, 66)=	.00000	VR(58, 67)=	.00000
VR(58, 68)=	.00000	VR(58, 69)=	.00000	VR(58, 70)=	.00000	VR(58, 71)=	20.000	VR(58, 72)=	300.00
VR(58, 73)=	1251.0	VR(58, 74)=	99.855	VR(58, 75)=	92.586	VR(58, 76)=	83.541	VR(58, 77)=	130.77
VR(58, 78)=	235.16	VR(58, 79)=	305.40	VR(58, 80)=	9.4484	VR(58, 81)=	.00000	VR(58, 82)=	.00000
VR(58, 83)=	.00000	VR(58, 84)=	.00000	VR(60, 65)=	1380.6	VR(60, 66)=	731.67	VR(60, 67)=	.00000
VR(60, 68)=	.00000	VR(60, 69)=	-648.91	VR(60, 70)=	.00000	VR(60, 71)=	.00000	VR(60, 72)=	.00000
VR(60, 73)=	.00000	VR(60, 74)=	.00000	VR(60, 75)=	.00000	VR(60, 76)=	1100.0	VR(60, 77)=	.00000
VR(60, 78)=	.00000	VR(60, 79)=	.00000	VR(60, 80)=	.00000	VR(60, 81)=	70.000	VR(60, 82)=	1100.0
VR(60, 83)=	1100.0	VR(60, 84)=	365.00	VR(60, 85)=	.00000	VR(60, 86)=	.00000	VR(60, 87)=	70.000
VR(60, 88)=	15.000	VR(60, 89)=	.38513	VR(60, 90)=	14.700	VR(60, 91)=	.30000	VR(60, 92)=	3.2000
VR(60, 93)=	.20000	VR(60, 94)=	3.0418	VR(60, 95)=	11.475	VR(60, 96)=	60.000	VR(60, 97)=	15.000
VR(60, 98)=	43.414	VR(60, 99)=	7.6000	VR(60,100)=	2.3346	VR(60,101)=	250.00	VR(60,102)=	.00000
VR(60,103)=	279.34	VR(60,104)=	69.410	VR(60,105)=	14.700	VR(60,106)=	14.700	VR(60,107)=	277.70
VR(60,108)=	1.6393	VR(60,109)=	.00000	VR(60,110)=	.24129	VR(60,111)=	28.885	VR(60,112)=	64.262
VR(60,113)=	212.13	VR(60,114)=	1.3115	VR(60,115)=	.00000	VR(60,116)=	.00000	VR(60,117)=	.00000
VR(60,118)=	.00000	VR(60,119)=	.00000	VR(60,120)=	.00000	VR(60,121)=	.00000	VR(60,122)=	.00000
VR(60,123)=	.00000	VR(60,124)=	.00000	VR(60,125)=	.00000	VR(60,126)=	.00000	VR(60,127)=	.00000
VR(60,128)=	.00000	VR(60,129)=	.00000	VR(60,130)=	69.410	VR(60,131)=	69.410	VR(60,132)=	69.410
VR(60,133)=	69.410	VR(60,134)=	.00000	VR(60,135)=	-.16272-04	VR(60,136)=	.18722-04	VR(60,137)=	.30994-04
VR(60,138)=	.00000	VR(60,139)=	3750.0	VR(60,140)=	19.002	VR(60,141)=	67.729	VR(60,142)=	.00000
VR(60,143)=	.00000	VR(60,144)=	.00000	VR(60,145)=	.00000	VR(60,146)=	.00000	VR(60,147)=	.00000
VR(60,148)=	.00000	VR(60,149)=	.00000	VR(60,150)=	.00000	VR(60,151)=	.00000	VR(60,152)=	.00000
VR(60,153)=	.00000	VR(60,154)=	.00000	VR(60,155)=	90.000	VR(60,156)=	.73242-03	VR(60,157)=	1366.6
VR(60,158)=	.00000	VR(60,159)=	.00000	VR: 60,160)=	.00000	VR(60,161)=	.00000	VR(60,162)=	.00000

VR(60,163)=	.00000	VR(60,164)=	.00000	VR(60,165)=	.00000	VR(60,166)=	.00000	VR(60,167)=	.00000		
VR(60,168)=	.00000	VR(60,169)=	.00000	VR(60,170)=	69.410	VR(60,171)=	69.410	VR(60,172)=	69.410		
VR(60,173)=	69.410	VR(60,174)=	69.410	VR(60,175)=	.26703-04	VR(60,176)=	.00000	VR(60,177)=	-.11981-04		
VR(60,178)=	.00000	VR(60,179)=	.00000	VR(							

COMPONENT NO. =	48	49	50	51	55	56	58	60
SUBR. TYPE =	ALTCOM	WASDRY	ALTCOM	FAN	ALTCOM	SPLIT	CHAN	CABIN
KR								
1-SUBR NO./EXV/EXK	49000000	70005000	49000000	23000000	49000000	10000000	3003000	1020000
2-PRI SOR/FLO CODE	4700	4800	-4902	5002	2	5502	5602	6602
3-PRI SPFL TYP 1-3	10000	10000	0	0	0	0	0	0
4-PRI SPFL TYP 4-6	0	0	0	0	0	0	0	0
5-SEC SOR/FLO CODE	0	-4002	0	0	0	2	0	-5802
6-SEC SPFL TYP 1-3	0	0	0	0	0	0	0	0
7-SEC SPFL TYP 4-6	0	0	0	0	0	0	0	0
8-NEXT COMP/CABIN	4900000	5000000	5100000	2200000	0	5800000	6000060	6100000
9-COMP NSTR 1-9	0	110000	0	3000000	0	0	0	2000000
10-COMP NSTR 10-18	0	0	0	0	0	0	0	0
11-NCFL/NLFL/NPASS	112	401	401	401	0	401	401	401
12-PRI VISC/DENSITY	0	0	0	0	0	0	0	0
13-PRI OP/DP/OP/OP	0	0	0	0	0	0	0	0
14-SEC VISC/DENSITY	0	0	0	0	0	0	0	0
15-SEC OP/DP/OP/DP	0	0	0	0	0	0	0	0

SUBROUTINE DEPENDENT K ARRAY DATA

KR(49, 16)=	0	KR(49, 17)=	1	KR(49, 18)=	0	KR(51, 16)=	0	KR(51, 17)=	0		
KR(51, 18)=	0	KR(58, 16)=	0	KR(58, 17)=	5	KR(60, 16)=	0	KR(60, 17)=	0		

COMPONENT NO. =		61	62	63	64	65	66	68	70
SUC. TYPE =		SPLIT	CHILLR	SPLIT	ALTCOM	GASMIX	GASMIX	CMAN	CABIN
VR									
1-TOTAL PRI FLOW	P	832.000	832.000	.000000	.000000	832.000	832.000	1278.00	.000000
2-TEMPERATURE	R	69.4101	69.4101	69.4101	211.997	69.4101	69.4101	65.0000	69.7560
3-DUCT OUTLET P	I	14.7000	14.7000	14.7000	14.7000	14.7000	14.7000	14.7000	14.7000
4-COMP OUTLET P	M	14.7000	14.7000	14.7000	14.7000	14.7000	14.7000	14.7000	14.7000
5-NON-COND FLOW	A	827.117	827.117	.000000	.000000	827.117	827.117	1270.50	.000000
6-COND VAP FLOW	R	4.88265	4.88265	.000000	.000000	4.88265	4.88265	7.500000	.000000
7-COND LIQ FLOW	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
8-N-C SP HEAT		.241294	.241294	.241294	.241294	.241294	.241294	.241294	.241294
9-N-C MOL WT	S	28.8851	28.8851	28.8851	28.8851	28.8851	28.8851	28.8851	28.8851
10-OXYGEN FLOW	I	191.399	191.399	.000000	.000000	191.399	191.399	294.000	.000000
11-DILUENT FLOW	D	631.812	631.812	.000000	.000000	631.812	631.812	970.500	.000000
12-CO2 FLOW	E	3.90611	3.90611	.000000	.000000	3.90611	3.90611	6.000000	.000000
13-TRACE CTM FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
14-SPCL FLOW 1	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
15-SPCL FLOW 2	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
16-SPCL FLOW 3	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
17-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
18-SPCL FLOW 5		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
19-SPCL FLOW 6		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
20-TOTAL SEC FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
21-TEMPERATURE	E	69.4101	.000000	69.4101	.000000	.000000	.000000	.000000	.000000
22-DUCT OUTLET P	C	14.7000	.000000	14.7000	.000000	.000000	.000000	.000000	.000000
23-COMP OUTLET P	O	14.7000	.000000	14.7000	.000000	.000000	.000000	.000000	.000000
24-NON-COND FLOW	N	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
25-COND VAP FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
26-COND LIQ FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
27-N-C SP HEAT	R	.241294	.000000	.241294	.000000	.000000	.000000	.000000	.000000
28-N-C MOL WT	Y	28.8851	.000000	28.8851	.000000	.000000	.000000	.000000	.000000
29-OXYGEN FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
30-DILUENT FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
31-CO2 FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
32-TRACE CTM FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
33-SPCL FLOW 1	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
34-SPCL FLOW 2		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
35-SPCL FLOW 3	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
36-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
37-SPCL FLOW 5	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
38-SPCL FLOW 6	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
39-DH, C, DP PRI	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
40-LE, N, K DUCT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
41-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
42-DH, C, DP PRI	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
43-LE, N, K COMP	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
44-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
45-DH, C, DP SEC	C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
46-LE, N, K DUCT	O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
47-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
48-DH, C, DP SEC	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
49-LE, N, K COMP	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
50-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
51-COMP SOURCE TEMP		.000000	-8.00458	.000000	.000000	.000000	.000000	.000000	.000000

52-EFF SUMMED COND	.000000	.772578	.000000	.000000	.000000	.000000	.000000	.000000
53-COMP QTOTOL LOSS	.000000	-66.5067	.000000	.000000	.000000	.000000	.000000	.000000
54-AMBIENT GAS TEMP	.000000	70.0000	.000000	.000000	.000000	.000000	.000000	.000000
55-AMBIENT UA	.000000	45.0000	.000000	.000000	.000000	.000000	.000000	.000000
56-AMB CONV Q LOSS	.000000	-37.2313	.000000	.000000	.000000	.000000	.000000	.000000
57-AMB WALL TEMP	.000000	70.0000	.000000	.000000	.000000	.000000	.000000	.000000
58-AMB SCRIPTIF).A	.000000	20.0000	.000000	.000000	.000000	.000000	.000000	.000000
59-AMB RAD Q LOSS	.000000	-16.8121	.000000	.000000	.000000	.000000	.000000	.000000
60-STRUCTURE TEMP	.000000	70.0000	.000000	.000000	.000000	.000000	.000000	.000000
61-STRUCTURE KA/X	.000000	.800000-01	.000000	.000000	.000000	.000000	.000000	.000000
62-STRUCTURE Q LOSS	.000000	-6.24224	.000000	.000000	.000000	.000000	.000000	.000000
63-INSULATION TEMP	.000000	69.1726	.000000	.000000	.000000	.000000	.000000	.000000
64-INSULATION KA/X	.000000	.700000	.000000	.000000	.000000	.000000	.000000	.000000

SUBROUTINE DEPENDENT V ARRAY DATA - - -

VR(61, 65)= .00000	VR(62, 65)= 1.8805	VR(62, 66)= -10.000	VR(62, 67)= .63000	VR(62, 68)= 2.6000				
VR(62, 69)= 2.0900	VR(62, 70)= 1.0000	VR(62, 71)= 18.000	VR(62, 72)= 76.350	VR(62, 73)= .26000				
VR(62, 74)= 10.000	VR(62, 75)= -9.6583	VR(62, 76)= 3.5000	VR(62, 77)= -8.0046	VR(62, 78)= 6.3000				
VR(62, 79)= -7.7333	VR(62, 80)= .00000	VR(62, 81)= .00000	VR(62, 82)= 18.000	VR(62, 83)= 15.0000				
VR(62, 84)= -5.0000	VR(62, 85)= .00000	VR(62, 86)= .00000	VR(62, 87)= .00000	VR(62, 88)= .00000				
VR(62, 89)= .00000	VR(62, 90)= .00000	VR(62, 91)= .00000	VR(62, 92)= .00000	VR(62, 93)= .00000				
VR(62, 94)= 15.006	VR(62, 95)= 20.026	VR(62, 96)= 70.000	VR(62, 97)= .76000-01	VR(62, 98)= .78000-02				
VR(62, 99)= .24000	VR(62,100)= 1.0700	VR(62,101)= .00000	VR(62,102)= -28.000	VR(62,103)= 1.0000				
VR(62,104)= -7.7633	VR(62,105)= .00000	VR(62,106)= 255.90	VR(62,107)= .00000	VR(62,108)= 1.0000				
VR(62,109)= .00000	VR(62,110)= .00000	VR(62,111)= .00000	VR(62,112)= .00000	VR(62,113)= .00000				
VR(62,114)= .00000	VR(62,115)= .50000	VR(62,116)= .50000	VR(62,117)= 1.0000	VR(62,118)= 1.0000				
VR(62,119)= .49000	VR(62,120)= .80000-01	VR(62,121)= 70.000	VR(62,122)= .00000	VR(62,123)= .00000				
VR(62,124)= .00000	VR(62,125)= 32.250	VR(62,126)= 35.500	VR(62,127)= 35.630	VR(62,128)= 35.756				
VR(62,129)= 39.750	VR(62,130)= 39.880	VR(62,131)= .00000	VR(62,132)= 864.59	VR(62,133)= .00000				
VR(63, 65)= 1.0000	VR(64, 65)= .00000	VR(64, 66)= .00000	VR(65, 65)= 31.913	VR(66, 65)= 31.913				
VR(68, 65)= .00000	VR(68, 66)= .00000	VR(68, 67)= .00000	VR(68, 68)= .00000	VR(68, 69)= .00000				
VR(68, 70)= .00000	VR(68, 71)= 20.000	VR(68, 72)= 300.00	VR(68, 73)= 1252.9	VR(68, 74)= 99.821				
VR(68, 75)= 92.373	VR(68, 76)= 82.860	VR(68, 77)= 123.28	VR(68, 78)= 247.30	VR(68, 79)= 300.33				
VR(68, 80)= 2.3659	VR(68, 81)= .00000	VR(68, 82)= .00000	VR(68, 83)= .00000	VR(68, 84)= .00000				
VR(70, 65)= 1454.5	VR(70, 66)= 1186.0	VR(70, 67)= .00000	VR(70, 68)= .00000	VR(70, 69)= 268.44				
VR(70, 70)= .00000	VR(70, 71)= .00000	VR(70, 72)= .00000	VR(70, 73)= .00000	VR(70, 74)= .00000				
VR(70, 75)= .00000	VR(70, 76)= 1100.0	VR(70, 77)= .00000	VR(70, 78)= .00000	VR(70, 79)= .00000				
VR(70, 80)= .00000	VR(70, 81)= 70.000	VR(70, 82)= 1100.0	VR(70, 83)= 1100.0	VR(70, 84)= 365.00				
VR(70, 85)= .00000	VR(70, 86)= .00000	VR(70, 87)= 70.000	VR(70, 88)= 15.000	VR(70, 89)= .39288				
VR(70, 90)= 14.700	VR(70, 91)= .30000	VR(70, 92)= 3.2000	VR(70, 93)= .20000	VR(70, 94)= 3.0827				
VR(70, 95)= 11.630	VR(70, 96)= 50.000	VR(70, 97)= 15.000	VR(70, 98)= 44.221	VR(70, 99)= 7.6000				
VR(70,100)= 2.3660	VR(70,101)= 250.00	VR(70,102)= .00000	VR(70,103)= 282.95	VR(70,104)= 69.756				
VR(70,105)= 14.901	VR(70,106)= 14.901	VR(70,107)= 281.26	VR(70,108)= 1.6911	VR(70,109)= .00000				
VR(70,110)= .24129	VR(70,111)= 28.885	VR(70,112)= 65.084	VR(70,113)= 214.84	VR(70,114)= 1.3282				
VR(70,115)= .00000	VR(70,116)= .00000	VR(70,117)= .00000	VR(70,118)= .00000	VR(70,119)= .00000				
VR(70,120)= .00000	VR(70,121)= .00000	VR(70,122)= .00000	VR(70,123)= .00000	VR(70,124)= .00000				
VR(70,125)= .00000	VR(70,126)= .00000	VR(70,127)= .00000	VR(70,128)= .00000	VR(70,129)= .00000				
VR(70,130)= 69.756	VR(70,131)= 69.756	VR(70,132)= 69.756	VR(70,133)= 69.756	VR(70,134)= .00000				
VR(70,135)= -.12040-04	VR(70,136)= .15601	VR(70,137)= -.15603	VR(70,138)= .00000	VR(70,139)= 3750.0				
VR(70,140)= 18.989	VR(70,141)= 68.612	VR(70,142)= .00000	VR(70,143)= .00000	VR(70,144)= .00000				
VR(70,145)= .00000	VR(70,146)= .00000	VR(70,147)= .00000	VR(70,148)= .00000	VR(70,149)= .00000				
VR(70,150)= .00000	VR(70,151)= .00000	VR(70,152)= .00000	VR(70,153)= .00000	VR(70,154)= .00000				
VR(70,155)= 90.000	VR(70,156)= .00000	VR(70,157)= -1641.6	VR(70,158)= .00000	VR(70,159)= .00000				
VR(70,160)= .00000	VR(70,161)= .00000	VR(70,162)= .00000	VR(70,163)= .00000	VR(70,164)= .00000				
VR(70,165)= .00000	VR(70,166)= .00000	VR(70,167)= .00000	VR(70,168)= .00000	VR(70,169)= .00000				
VR(70,170)= 69.756	VR(70,171)= 69.756	VR(70,172)= 69.756	VR(70,173)= 69.756	VR(70,174)= 69.756				
VR(70,175)= .36106-01	VR(70,176)= .11917	VR(70,177)= .73689-03	VR(70,178)= .00000	VR(70,179)= .00000				

COMPONENT NO. =	61	62	63	64	65	66	68	70
SUBR. TYPE =	SPLIT	CHILLR	SPLIT	ALTCOM	GASMIX	GASMIX	CMAN	CABIN
KR 1-SUBR NO./EXV/EXK	10000000	71007000	10000000	49000000	6000000	6000000	3003000	1n20000
2-PRI SOR/FLO CODE	6002	6102	-6102	-6302	6202	6502	-5602	7702
3-PRI SPFL TYP 1-3	0	0	0	0	0	0	0	0
4-PRI SPFL TYP 4-6	0	0	0	0	0	0	0	0
5-SEC SOR/FLO CODE	2	0	2	0	-5102	-6402	0	-6802
6-SEC SPFL TYP 1-3	0	0	0	0	0	0	0	0
7-SEC SPFL TYP 4-6	0	0	0	0	0	0	0	0
8-NEXT COMP/CABIN	6200000	6300060	6400000	6800000	6600000	8000000	7000070	7800000
9-COMP NSTR 1-9	10000000	101111000	10000000	200000000	100000000	100000000	0	200000000
10-COMP NSTR 10-18	0	0	0	0	0	0	0	0
11-NCFL/NLFL/NPASS	401	401	401	401	401	401	401	401
12-PRI VISC/DENSITY	0	0	0	0	0	0	0	0
13-PRI OP/DP/OP/DP	0	0	0	0	0	0	0	0
14-SEC VISC/DENSITY	0	0	0	0	0	0	0	0
15-SEC OP/DP/OP/DP	0	0	0	0	0	0	0	0

SUBROUTINE DEPENDENT K ARRAY DATA - - -

KR(62, 16)= 125 KR(62, 17)= 0 KR(62, 18)= 0 KR(62, 19)= 0 KR(68, 16)= 0
KR(68, 17)= 5 KR(70, 16)= 0 KR(70, 17)= 0 KR(

COMPONENT NO. *		71	72	73	74	75	76	77	78
SUBR. TYPE *		SPLIT	SPLIT	SPLIT	ALTCOM	GASMIX	GASMIX	GASMIX	SPLIT
VR									
1-TOTAL PRI FLOW	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
2-TEMPERATURE	R	69.7560	69.7560	69.7560	211.997	.000000	.000000	69.7560	69.7560
3-DUCT OUTLET P	I	14.7000	14.7000	14.7000	14.7000	.000000	.000000	.000000	14.7000
4-COMP OUTLET P	M	14.7000	14.7000	14.7000	14.7000	.000000	.000000	14.7000	14.7000
5-NON-COND FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
6-COND VAP FLOW	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
7-COND LIQ FLOW	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
8-N-C SP HEAT		.241288	.241294	.241294	.241294	.000000	.000000	.000000	.241294
9-N-C MOL WT	S	28.8870	28.8851	28.8851	28.8851	.000000	.000000	.000000	28.8851
10-OXYGEN FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
11-DILUENT FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
12-CO2 FLOW	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
13-TRACE CTM FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
14-SPCL FLOW 1	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
15-SPCL FLOW 2	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
16-SPCL FLOW 3	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
17-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
18-SPCL FLOW 5		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
19-SPCL FLOW 6		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
20-TOTAL SEC FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
21-TEMPERATURE	E	69.7560	69.7560	69.7560	.000000	.000000	.000000	.000000	69.7560
22-DUCT OUTLET P	C	14.7000	14.7000	14.7000	.000000	.000000	.000000	.000000	14.7000
23-COMP OUTLET P	O	14.7000	14.7000	14.7000	.000000	.000000	.000000	.000000	14.7000
24-NON-COND FLOW	N	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
25-COND VAP FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
26-COND LIQ FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
27-N-C SP HEAT	R	.241294	.241294	.241294	.000000	.000000	.000000	.000000	.241294
28-N-C MOL WT	Y	28.8851	28.8851	28.8851	.000000	.000000	.000000	.000000	28.8851
29-OXYGEN FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
30-DILUENT FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
31-CO2 FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
32-TRACE CTM FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
33-SPCL FLOW 1	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
34-SPCL FLOW 2		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
35-SPCL FLOW 3	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
36-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
37-SPCL FLOW 5	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
38-SPCL FLOW 6	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
39-DH, C, DP PRI	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
40-LE, N, K DUCT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
41-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
42-DH, C, DP PRI	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
43-LE, N, K COMP	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
44-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
45-DH, C, DP SEC	C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
46-LE, N, K DUCT	O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
47-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
48-DH, C, DP SEC	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
49-LE, N, K COMP	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
50-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
51-COMP SOURCE TEMP		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000

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52-EFF SUMMED COND	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
53-COMP QTOTOL LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
54-AMBIENT GAS TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
55-AMBIENT UA	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
56-AMB CONV Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
57-AMB WALL TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
58-AMB SCRIPT(F)*A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
59-AMB RAD Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
60-STRUCTURE TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
61-STRUCTURE KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
62-STRUCTURE Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
63-INSULATION TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
64-INSULATION KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000

SUBROUTINE DEPENDENT V ARRAY DATA - - -

VR(71, 65)= 1.0000 VR(72, 65)= 1.0000 VR(73, 65)= 1.0000 VR(74, 66)= .00000 VR(74, 66)= .00000
VR(75, 65)= 44.227 VR(76, 65)= 44.227 VR(77, 65)= 44.227 VR(78, 65)= .00000 VR(

COMPONENT NO. = SUBR. TYPE =	71 SPLIT	72 SPLIT	73 SPLIT	74 ALTCOM	75 GASMIX	76 GASMIX	77 GASMIX	78 SPLIT
KR								
1-SUBR NO./EXV/EXK	10000000	10000000	10000000	49000000	6000000	6000000	6000000	10000000
2-PRI SOR/FLO CODE	7802	-7102	-7202	-7302	8002	7502	7602	7002
3-PRI SPFL TYP 1-3	0	0	0	0	0	0	0	0
4-PRI SPFL TYP 4-6	0	0	0	0	0	0	0	0
5-SEC SOR/FLO CODE	2	2	2	0	-12602	-2502	-7402	2
6-SEC SPFL TYP 1-3	0	0	0	0	0	0	0	0
7-SEC SPFL TYP 4-6	0	0	0	0	0	0	0	0
8-NEXT COMP/CABIN	7200000	7300000	7400000	4000000	7600000	7700000	8400000	7900000
9-COMP NSTR 1-9	10000000	10000000	10000000	200000000	0	0	0	20000000
10-COMP NSTR 10-18	0	0	0	0	0	0	0	0
11-NCFL/NLFL/NPASS	401	401	401	401	401	401	401	401
12-PRI VISC/DENSITY	0	0	0	0	0	0	0	0
13-PRI OP/DP/OP/DP	0	0	0	0	0	0	0	0
14-SEC VISC/DENSITY	0	0	0	0	0	0	0	0
15-SEC OP/DP/OP/DP	0	0	0	0	0	0	0	0

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VR	COMPONENT NO. = / SUBR. TYPE =	79 ALTCOM	80 GASMIX	83 SPLIT	84 LIQMIX	85 TANKG	86 SPLIT	87 SPLIT	88 LIQMIX
1-TOTAL PRI FLOW	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
2-TEMPERATURE	R	69.7560	.000000	161.588	.000000	161.588	161.588	161.588	.000000
3-DUCT OUTLET P	I	14.7000	.000000	45.0000	.000000	45.0000	45.0000	45.0000	.000000
4-COMP OUTLET P	M	14.7000	.000000	45.0000	.000000	45.0000	45.0000	45.0000	.000000
5-NON-COND FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
6-COND VAP FLOW	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
7-COND LIQ FLOW	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
8-N-C SP HEAT		.241294	.000000	.000000	.000000	.000000	.000000	.000000	.000000
9-N-C MOL WT	S	28.8851	.000000	.000000	.000000	.000000	.000000	.000000	.000000
10-OXYGEN FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
11-DILUENT FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
12-CO2 FLOW	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
13-TRACE CTM FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
14-SPCL FLOW 1	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
15-SPCL FLOW 2	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
16-SPCL FLOW 3	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
17-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
18-SPCL FLOW 5		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
19-SPCL FLOW 6		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
20-TOTAL SEC FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
21-TEMPERATURE	E	161.588	.000000	161.588	.000000	.000000	161.588	161.588	.000000
22-DUCT OUTLET P	C	45.0000	.000000	45.0000	.000000	.000000	45.0000	45.0000	.000000
23-COMP OUTLET P	O	45.0000	.000000	45.0000	.000000	.000000	45.0000	45.0000	.000000
24-NON-COND FLOW	N	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
25-COND VAP FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
26-COND LIQ FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
27-N-C SP HEAT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
28-N-C MOL WT	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
29-OXYGEN FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
30-DILUENT FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
31-CO2 FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
32-TRACE CTM FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
33-SPCL FLOW 1	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
34-SPCL FLOW 2		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
35-SPCL FLOW 3	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
36-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
37-SPCL FLOW 5	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
38-SPCL FLOW 6	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
39-DH, C, DP PRI	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
40-LE, N, K DUCT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
41-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
42-DH, C, DP PRI	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
43-LE, N, K COMP	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
44-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
45-DH, C, DP SEC	C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
46-LE, N, K DUCT	O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
47-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
48-DH, C, DP SEC	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
49-LE, N, K COMP		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
50-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
51-COMP SOURCE TEMP		.000000	.000000	.000000	.000000	144.012	.000000	.000000	.000000

52-EFF SUMMED COND	.000000	.000000	.000000	.000000	6.73260	.000000	.000000	.000000
53-COMP QTOTOL LOSS	.000000	.000000	.000000	.000000	465.032	.000000	.000000	.000000
54-AMBIENT GAS TEMP	.000000	.000000	.000000	.000000	75.0000	.000000	.000000	.000000
55-AMBIENT UA	.000000	.000000	.000000	.000000	20.0000	.000000	.000000	.000000
56-AMB CONV Q LOSS	.000000	.000000	.000000	.000000	123.132	.000000	.000000	.000000
57-AMB WALL TEMP	.000000	.000000	.000000	.000000	75.0000	.000000	.000000	.000000
58-AMB SCRIPT(F)*A	.000000	.000000	.000000	.000000	10.0000	.000000	.000000	.000000
59-AMB RAD Q LOSS	.000000	.000000	.000000	.000000	65.6134	.000000	.000000	.000000
60-STRUCTURE TEMP	.000000	.000000	.000000	.000000	75.0000	.000000	.000000	.000000
61-STRUCTURE KA/X	.000000	.000000	.000000	.000000	4.00000	.000000	.000000	.000000
62-STRUCTURE Q LOSS	.000000	.000000	.000000	.000000	276.287	.000000	.000000	.000000
63-INSULATION TEMP	.000000	.000000	.000000	.000000	81.1566	.000000	.000000	.000000
64-INSULATION KA/X	.000000	.000000	.000000	.000000	3.00000	.000000	.000000	.000000

SUBROUTINE DEPENDENT V ARRAY DATA - - -

VR(79, 65)=	162.28	VR(79, 66)=	.00000	VR(80, 65)=	44.227	VR(83, 65)=	.00000	VR(85, 65)=	.00000
VR(85, 66)=	.00000	VR(85, 67)=	.00000	VR(85, 68)=	500.00	VR(85, 69)=	231.86	VR(85, 70)=	161.59
VR(85, 71)=	.00000	VR(85, 72)=	45.000	VR(85, 73)=	.00000	VR(85, 74)=	.00000	VR(85, 75)=	.00000
VR(85, 76)=	.00000	VR(85, 77)=	.00000	VR(85, 78)=	.00000	VR(85, 79)=	.00000	VR(85, 80)=	.00000
VR(85, 81)=	.00000	VR(85, 82)=	.17014+39	VR(85, 83)=	.00000	VR(85, 84)=	.00000	VR(85, 85)=	.00000
VR(85, 86)=	.00000	VR(85, 87)=	.00000	VR(85, 88)=	1.0000	VR(85, 89)=	62.400	VR(85, 90)=	1.4000
VR(85, 91)=	18.000	VR(85, 92)=	9.9000	VR(85, 93)=	25.000	VR(85, 94)=	4.0000	VR(85, 95)=	.00000
VR(85, 96)=	.00000	VR(85, 97)=	9.7698	VR(86, 65)=	1.0000	VR(87, 65)=	1.0000.	VR(	

COMPONENT NO. = / SUBR. TYPE =	79 ALTCOM	80 GASMIX	83 SPLIT	84 LIQMIX	85 TANKG	86 SPLIT	87 SPLIT	88 LIQMIX
KR 1-SUBR NO./EXV/EXK	49000000	6000000	10000000	7000000	30000000	10000000	10000000	7000000
2-PRI SOR/FLO CODE	-7802	1402	8500	2300	-9000	8300	-8600	6400
3-PRI SPFL TYP 1-3	0	0	10000	10000	10000	10000	10000	10000
4-PRI SPFL TYP 4-6	0	0	0	0	0	0	0	0
5-SEC SOR/FLO CODE	8300	-7902	0	7900	0	0	0	-3400
6-SEC SPFL TYP 1-3	10000	0	10000	10000	0	10000	10000	10000
7-SEC SPFL TYP 4-6	0	0	0	0	0	0	0	0
8-NEXT COMP/CABIN	7100000	7500000	8600000	8800000	8300000	8700000	5600000	8900000
9-COMP NSTR 1-9	0	0	20000000	0	1100000	10000000	10000000	0
10-COMP NSTR 10-18	0	0	0	0	0	0	0	0
11-NCFL/NLFL/NPASS	401	401	401	401	401	401	401	401
12-PRI VISC/DENSITY	0	0	0	0	0	0	0	0
13-PRI OP/DP/OP/DP	0	0	0	0	0	0	0	0
14-SEC VISC/DENSITY	0	0	0	0	0	0	0	0
15-SEC OP/DP/OP/DP	0	0	0	0	0	0	0	0

COMPONENT NO. =		89	90	91	92	93	94	95	96
SUBR. TYPE =		LIQMIX	ROSMOS	PUMP	LIQMIX	TANKG	TANKG	FTRAY	ALTCOM
VR									
1-TOTAL PRI FLOW	P	.000000	.430154	.000000	.430154	.000000	.000000	.000000	75.0000
2-TEMPERATURE	R	.000000	75.2544	.000000	75.2544	85.0000	160.000	.000000	37.0000
3-DUCT OUTLET P	I	.000000	940.000	.000000	940.000	940.000	45.0000	.000000	240.000
4-COMP OUTLET P	M	.000000	940.000	940.000	940.000	45.0000	45.0000	.000000	240.000
5-NON-COND FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
6-COND VAP FLOW	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
7-COND LIQ FLOW	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
8-N-C SP HEAT		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
9-N-C MOL WT	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
10-OXYGEN FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
11-DILUENT FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
12-CO2 FLOW	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
13-TRACE CTM FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
14-SPCL FLOW 1	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
15-SPCL FLOW 2	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
16-SPCL FLOW 3	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
17-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
18-SPCL FLOW 5		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
19-SPCL FLOW 6		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
20-TOTAL SEC FLOW	S	.000000	9.76985	.000000	.000000	.000000	.000000	.000000	.000000
21-TEMPERATURE	E	.000000	75.2544	.000000	.000000	.000000	.000000	.000000	.000000
22-DUCT OUTLET P	C	.000000	45.0000	.000000	.000000	.000000	.000000	.000000	.000000
23-COMP OUTLET P	O	.000000	45.0000	.000000	.000000	.000000	.000000	.000000	.000000
24-NON-COND FLOW	N	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
25-COND VAP FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
26-COND LIQ FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
27-N-C SP HEAT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
28-N-C MOL WT	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
29-OXYGEN FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
30-DILUENT FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
31-CO2 FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
32-TRACE CTM FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
33-SPCL FLOW 1	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
34-SPCL FLOW 2		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
35-SPCL FLOW 3	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
36-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
37-SPCL FLOW 5	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
38-SPCL FLOW 6	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
39-DH, C, DP PRI	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
40-LE, N, K DUCT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
41-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
42-DH, C, DP PRI	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
43-LE, N, K COMP	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
44-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
45-DH, C, DP SEC	C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
46-LE, N, K DUCT	O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
47-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
48-DH, C, DP SEC	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
49-LE, N, K COMP	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
50-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
51-COMP SOURCE TEMP		.000000	75.0000	.000000	.000000	.000000	.000000	132.020	.000000

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52-EFF SUMMED COND	.000000	.000000	.000000	.000000	.000000	.000000	.439816	.000000
53-COMP QTOTOL LOSS	.000000	.000000	.000000	.000000	.000000	.000000	494.278	.000000
54-AMBIENT GAS TEMP	.000000	70.0000	.000000	.000000	.000000	.000000	70.0000	.000000
55-AMBIENT UA	.000000	.000000	.000000	.000000	.000000	.000000	.148000	.000000
56-AMB CONV Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	166.327	.000000
57-AMB WALL TEMP	.000000	70.0000	.000000	.000000	.000000	.000000	70.0000	.000000
58-AMB SCRIPT(F)*A	.000000	.000000	.000000	.000000	.000000	.000000	.625000-01	.000000
59-AMB RAD Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	85.2040	.000000
60-STRUCTURE TEMP	.000000	70.0000	.000000	.000000	.000000	.000000	70.0000	.000000
61-STRUCTURE KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.216000	.000000
62-STRUCTURE Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	242.747	.000000
63-INSULATION TEMP	.000000	70.0000	.000000	.000000	.000000	.000000	132.435	.000000
64-INSULATION KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000

SUBROUTINE DEPENDENT V ARRAY DATA - - -

VR(90, 65)= .96000	VR(90, 66)= .93000	VR(90, 67)= 50.000	VR(90, 68)= .17645	VR(90, 69)= .58333-03	
VR(90, 70)= 9.0000	VR(90, 71)= .10000-01	VR(90, 72)= .80000-02	VR(90, 73)= 900.00	VR(90, 74)= 45.000	
VR(90, 75)= 200.00	VR(90, 76)= 2.5000	VR(91, 65)= .00000	VR(91, 66)= .00000	VR(91, 67)= .00000	
VR(91, 68)= .00000	VR(91, 69)= .00000	VR(91, 70)= .00000	VR(91, 71)= .00000	VR(91, 72)= .00000	
VR(91, 73)= .00000	VR(91, 74)= .00000	VR(91, 75)= .00000	VR(91, 76)= .00000	VR(91, 77)= .00000	
VR(91, 78)= .00000	VR(91, 79)= .00000	VR(91, 80)= .00000	VR(91, 81)= .00000	VR(91, 82)= .00000	
VR(91, 83)= .00000	VR(91, 84)= .00000	VR(91, 85)= 20.000	VR(93, 65)= .00000	VR(93, 66)= .00000	
VR(93, 67)= .00000	VR(93, 68)= 40.000	VR(93, 69)= 3.9405	VR(93, 70)= 85.000	VR(93, 71)= .00000	
VR(93, 72)= 45.000	VR(93, 73)= .00000	VR(93, 74)= .00000	VR(93, 75)= .00000	VR(93, 76)= .00000	
VR(93, 77)= .00000	VR(93, 78)= .00000	VR(93, 79)= .00000	VR(93, 80)= .00000	VR(93, 81)= .00000	
VR(93, 82)= .17014+39	VR(93, 83)= .00000	VR(93, 84)= .00000	VR(93, 85)= .00000	VR(93, 86)= .00000	
VR(93, 87)= .00000	VR(93, 88)= 1.0000	VR(93, 89)= 62.400	VR(93, 90)= 1.4000	VR(93, 91)= 18.000	
VR(93, 92)= .00000	VR(93, 93)= .00000	VR(93, 94)= .00000	VR(93, 95)= .00000	VR(93, 96)= .00000	
VR(93, 97)= .43015	VR(94, 65)= .00000	VR(94, 66)= .00000	VR(94, 67)= .00000	VR(94, 68)= 200.00	
VR(94, 69)= 119.72	VR(94, 70)= 160.00	VR(94, 71)= .00000	VR(94, 72)= 85.000	VR(94, 73)= .00000	
VR(94, 74)= .00000	VR(94, 75)= .00000	VR(94, 76)= .00000	VR(94, 77)= .00000	VR(94, 78)= .00000	
VR(94, 79)= .00000	VR(94, 80)= .00000	VR(94, 81)= .00000	VR(94, 82)= .17014+39	VR(94, 83)= .00000	
VR(94, 84)= .00000	VR(94, 85)= .00000	VR(94, 86)= .00000	VR(94, 87)= .00000	VR(94, 88)= 1.0000	
VR(94, 89)= 62.400	VR(94, 90)= 1.4000	VR(94, 91)= 18.000	VR(94, 92)= .00000	VR(94, 93)= .00000	
VR(94, 94)= .00000	VR(94, 95)= .00000	VR(94, 96)= .00000	VR(94, 97)= .00000	VR(95, 65)= .00000	
VR(95, 66)= 18.000	VR(95, 67)= 1.8750	VR(95, 68)= 1.1250	VR(95, 69)= 2.9000	VR(95, 70)= .62489	
VR(95, 71)= 151.29	VR(95, 72)= 134.58	VR(95, 73)= 111.21	VR(95, 74)= 121.03	VR(95, 75)= 141.98	
VR(95, 76)= .11379	VR(95, 77)= .25566	VR(95, 78)= .22361	VR(95, 79)= .25544	VR(95, 80)= .21818	
VR(95, 81)= .56364	VR(95, 82)= .99000	VR(95, 83)= .25000	VR(95, 84)= 157.00	VR(95, 85)= 2.0000	
VR(95, 86)= .78000	VR(95, 87)= .20290	VR(95, 88)= 1.9000	VR(95, 89)= .72400	VR(95, 90)= 52.000	
VR(95, 91)= 1.1371	VR(95, 92)= .66182-01	VR(95, 93)= .66182-01	VR(95, 94)= .48073	VR(95, 95)= .48073	
VR(95, 96)= .00000	VR(95, 97)= .00000	VR(95, 98)= .00000	VR(95, 99)= .00000	VR(95,100)= .00000	
VR(95,101)= 59.000	VR(95,102)= .23418-01	VR(95,103)= .61430-01	VR(95,104)= -1.0000	VR(95,105)= -1.0000	
VR(96, 65)= .00000	VR(96, 66)= .00000	VR(			

COMPONENT NO. = / SUBR. TYPE =	89 LIQMIX	90 ROSMOS	91 PUMP.	92 LIQMIX	93 TANKG	94 TANKG	95 FTRAY	96 ALTCOM
KR 1-SUBR NO./EXV/EXK	7000000	69000000	22000000	7000000	30000000	30000000	66000000	49000000
2-PRI SOR/FLO CODE	8800	9800	8900	12500	9200	9300	0	0
3-PRI SPFL TYP 1-3	10000	10000	10000	10000	10000	10000	0	20000
4-PRI SPFL TYP 4-6	0	0	0	0	0	0	0	0

5-SEC SOR/FLO CODE	-4500	0	0	-7000	0	0	0	0
6-SEC SPFL TYP 1-3	10000	10000	0	10000	0	0	0	0
7-SEC SPFL TYP 4-6	0	0	0	0	0	0	0	0
8-NEXT COMP/CABIN	9100000	9200000	9800000	9300000	9400000	9500000	9700000	0
9-COMP NSTR 1-9	0	0	200000	0	110100000	110100000	0	0
10-COMP NSTR 10-18	0	0	0	0	0	0	0	0
11-NCFL/NLFL/NPASS	401	401	401	401	1	1	401	0
12-PRI VISC/DENSITY	0	0	0	0	0	0	0	0
13-PRI OP/DP/OP/DP	0	0	0	0	0	0	0	0
14-SEC VISC/DENSITY	0	0	0	0	0	0	0	0
15-SEC OP/DP/OP/DP	0	0	0	0	0	0	0	0

SUBROUTINE DEPENDENT K ARRAY DATA - - -

KR(90, 16)= 0 KR(91, 16)= 0 KR(91, 17)= 0 KR(95, 16)= 1 KR(95, 17)= 0
KR(95, 18)= 2 KR(

COMPONENT NO. / SUBR.	TYPE	97 CHILLR	98 TANKG	120 SPLIT	121 WASTEC	122 SPLIT	123 GASMIX	125 ALTCOM	126 ALTCOM
VR									
1-TOTAL PRI FLOW	P	75.0000	10.2000	.000000	.305539-01	.000000	.000000	.000000	.000000
2-TEMPERATURE	R	40.1872	75.2544	69.7560	57.0767	57.0767	.000000	.000000	.000000
3-DUCT OUTLET P	I	240.000	940.000	14.7000	.231594	.231594	.000000	.000000	-.722600-01
4-COMP OUTLET P	M	240.000	940.000	14.7000	.231594	.231594	.000000	.000000	.000000
5-NON-COND FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
6-COND VAP FLOW	R	.000000	.000000	.000000	.305539-01	.000000	.000000	.000000	.000000
7-COND LIQ FLOW	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
8-N-C SP HEAT		.000000	.000000	.241294	.241294	.241294	.000000	.000000	.000000
9-N-C MOL WT	S	.000000	.000000	28.8851	.100000-29	28.8851	.000000	.000000	.000000
10-OXYGEN FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
11-DILUENT FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
12-CO2 FLOW	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
13-TRACE CTM FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
14-SPCL FLOW 1	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
15-SPCL FLOW 2	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
16-SPCL FLOW 3	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
17-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
18-SPCL FLOW 5		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
19-SPCL FLOW 6		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
20-TOTAL SEC FLOW	S	.000000	.000000	.000000	.000000	.305539-01	.000000	.000000	.000000
21-TEMPERATURE	E	.000000	.000000	69.7560	69.7560	57.0767	.000000	.000000	.000000
22-DUCT OUTLET P	C	.000000	.000000	14.7000	14.7000	.231594	.000000	.000000	.000000
23-COMP OUTLET P	O	.000000	.000000	14.7000	14.7000	.231594	.000000	.000000	.000000
24-NON-COND FLOW	N	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
25-COND VAP FLOW	D	.000000	.000000	.000000	.000000	.305539-01	.000000	.000000	.000000
26-COND LIQ FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
27-N-C SP HEAT	R	.000000	.000000	.241294	.241294	.000000	.000000	.000000	.000000
28-N-C MOL WT	Y	.000000	.000000	28.8851	28.8851	.100000-29	.000000	.000000	.000000
29-OXYGEN FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
30-DILUENT FLOW	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
31-CO2 FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
32-TRACE CTM FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
33-SPCL FLOW 1	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
34-SPCL FLOW 2		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
35-SPCL FLOW 3	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
36-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
37-SPCL FLOW 5	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
38-SPCL FLOW 6	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
39-DH, C, DP PRI	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
40-LE, N, K DUCT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
41-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
42-DH, C, DP PRI	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
43-LE, N, K CMP	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
44-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
45-DH, C, DP SEC	C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
46-LE, N, K DUCT	O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
47-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
48-DH, C, DP SEC	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
49-LE, N, K COMP	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
50-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
51-COMP SOURCE TEMP		41.2864	75.2075	.000000	57.0574	.000000	.000000	.000000	.000000

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52-EFF SUMMED COND	.772581	10.0000	.000000	2.32092	.000000	.000000	.000000	.000000
53-COMP QTOTOL LOSS	-22.1846	2.33017	.000000	-29.9941	.000000	.000000	.000000	.000000
54-AMBIENT GAS TEMP	70.0000	.000000	.000000	70.0000	.000000	.000000	.000000	.000000
55-AMBIENT UA	45.0000	.000000	.000000	2.00000	.000000	.000000	.000000	.000000
56-AMB CONV Q LOSS	-13.6945	.000000	.000000	-12.1901	.000000	.000000	.000000	.000000
57-AMB WALL TEMP	70.0000	.000000	.000000	70.0000	.000000	.000000	.000000	.000000
58-AMB SCRIPTIF).A	20.0000	.000000	.000000	.800000	.000000	.000000	.000000	.000000
59-AMB RAD Q LOSS	-6.19302	.000000	.000000	-4.88066	.000000	.000000	.000000	.000000
60-STRUCTURE TEMP	70.0000	75.0000	.000000	70.0000	.000000	.000000	.000000	.000000
61-STRUCTURE KA/X	.8000000-01	10.0000	.000000	1.00000	.000000	.000000	.000000	.000000
62-STRUCTURE Q LOSS	-2.29712	2.33017	.000000	-12.9233	.000000	.000000	.000000	.000000
63-INSULATION TEMP	69.6957	75.2330	.000000	63.9049	.000000	.000000	.000000	.000000
64-INSULATION KA/X	.700000	.000000	.000000	2.50000	.000000	.000000	.000000	.000000

SUBROUTINE DEPENDENT V ARRAY DATA - - -

VR(97, 65)=	19.760	VR(97, 66)=	-8.5000	VR(97, 67)=	.63000	VR(97, 68)=	9.6000	VR(97, 69)=	2.0900
VR(97, 70)=	1.0000	VR(97, 71)=	24.000	VR(97, 72)=	26.350	VR(97, 73)=	.20000	VR(97, 74)=	10.000
VR(97, 75)=	40.991	VR(97, 76)=	3.5000	VR(97, 77)=	41.286	VR(97, 78)=	4.3000	VR(97, 79)=	40.187
VR(97, 80)=	.000000	VR(97, 81)=	.000000	VR(97, 82)=	18.000	VR(97, 83)=	-10.500	VR(97, 84)=	-7.0000
VR(97, 85)=	.000000	VR(97, 86)=	.000000	VR(97, 87)=	.000000	VR(97, 88)=	.000000	VR(97, 89)=	.000000
VR(97, 90)=	.000000	VR(97, 91)=	.000000	VR(97, 92)=	.000000	VR(97, 93)=	.000000	VR(97, 94)=	16.324
VR(97, 95)=	25.296	VR(97, 96)=	70.000	VR(97, 97)=	.75000-01	VR(97, 98)=	-.69040-02	VR(97, 99)=	.24000
VR(97,100)=	.36400	VR(97,101)=	.000000	VR(97,102)=	.000000	VR(97,103)=	1.0000	VR(97,104)=	40.187
VR(97,105)=	.000000	VR(97,106)=	255.90	VR(97,107)=	5.0000	VR(97,108)=	1.0000	VR(97,109)=	.000000
VR(97,110)=	.000000	VR(97,111)=	.000000	VR(97,112)=	.000000	VR(97,113)=	.000000	VR(97,114)=	65700.
VR(97,115)=	.500000	VR(97,116)=	.500000	VR(97,117)=	.000000	VR(97,118)=	.000000	VR(97,119)=	.250000
VR(97,120)=	.12900	VR(97,121)=	97.000	VR(97,122)=	.000000	VR(97,123)=	66.554	VR(97,124)=	.000000
VR(97,125)=	.000000	VR(97,126)=	.000000	VR(98, 65)=	.000000	VR(98, 66)=	.000000	VR(98, 67)=	.000000
VR(98, 68)=	340.00	VR(98, 69)=	309.83	VR(98, 70)=	75.254	VR(98, 71)=	.000000	VR(98, 72)=	940.00
VR(98, 73)=	.000000	VR(98, 74)=	.000000	VR(98, 75)=	.000000	VR(98, 76)=	.000000	VR(98, 77)=	.000000
VR(98, 78)=	.000000	VR(98, 79)=	.000000	VR(98, 80)=	.000000	VR(98, 81)=	.000000	VR(98, 82)=	.000000
VR(98, 83)=	.000000	VR(98, 84)=	.000000	VR(98, 85)=	.000000	VR(98, 86)=	.000000	VR(98, 87)=	.000000
VR(98, 88)=	1.0000	VR(98, 89)=	62.400	VR(98, 90)=	1.4000	VR(98, 91)=	18.000	VR(98, 92)=	.000000
VR(98, 93)=	20.000	VR(98, 94)=	4.0000	VR(98, 95)=	.000000	VR(98, 96)=	.000000	VR(98, 97)=	-10.200
VR(120, 65)=	1.0000	VR(121, 65)=	.000000	VR(121, 66)=	.000000	VR(121, 67)=	20.0000	VR(121, 68)=	.000000
VR(121, 69)=	108.09	VR(121, 70)=	.000000	VR(121, 71)=	.000000	VR(121, 72)=	.000000	VR(121, 73)=	.000000
VR(121, 74)=	1.0000	VR(121, 75)=	3.0000	VR(121, 76)=	.30554-01	VR(121, 77)=	1.5000	VR(121, 78)=	.150000
VR(121, 79)=	97.000	VR(121, 80)=	3.0000	VR(121, 81)=	1.2000	VR(121, 82)=	.600000	VR(121, 83)=	.600000
VR(121, 84)=	.89174-01	VR(121, 85)=	.500000	VR(121, 86)=	.300000	VR(121, 87)=	.750000	VR(121, 88)=	.250000
VR(121, 89)=	1.2368	VR(121, 90)=	.000000	VR(121, 91)=	2.6125	VR(121, 92)=	.000000	VR(121, 93)=	56070.
VR(121, 94)=	.000000	VR(121, 95)=	.000000	VR(121, 96)=	.000000	VR(121, 97)=	1.00000	VR(121, 98)=	.000000
VR(121, 99)=	.74312-01	VR(121,100)=	63.964	VR(121,101)=	70.467	VR(121,102)=	14.700	VR(121,103)=	14.700
VR(121,104)=	63.547	VR(121,105)=	.41697	VR(121,106)=	.000000	VR(121,107)=	.24129	VR(121,108)=	28.865
VR(121,109)=	14.705	VR(121,110)=	48.542	VR(121,111)=	.30011	VR(121,112)=	.000000	VR(121,113)=	.000000
VR(121,114)=	.000000	VR(121,115)=	.47340	VR(122, 65)=	1.0000	VR(123, 65)=	54.258	VR(125, 65)=	.000000
VR(125, 66)=	.000000	VR(126, 65)=	.00000	VR(126, 66)=	.00000	VR(			

COMPONENT NO. =	97	98	120	121	122	123	125	126
SUBR. TYPE =	CHILLR	TANKG	SPLIT	WASTEC	SPLIT	GASMIX	ALTCOM	ALTCOM
KR 1-SUBR NO./EXV/EXK	71000000	30000000	10000000	68017000	10000000	6000000	49000000	49000000
2-PRI SOR/FLO CODE	9600	9100	7202	12002	12102	12202	0	-12502

3-PRI SPFL TYP 1-3	20000	10000	0	0	0	0	10000	0
4-PRI SPFL TYP 4-6	0	0	0	0	0	0	0	0
5-SEC SOR/FLO CODE	0	0	2	12002	2	12102	-12302	0
6-SEC SPFL TYP 1-3	0	0	0	0	0	0	0	0
7-SEC SPFL TYP 4-6	0	0	0	0	0	0	0	0
8-NEXT COMP/CABIN	8500060	9000000	12100000	12200000	12300000	12500000	12600000	12800000
9-COMP NSTR 1-9	0	120100000	0	0	0	0	0	0
10-COMP NSTR 10-18	0	0	0	0	0	0	0	0
11-NCFL/NLFL/NPASS	401	1	401	401	401	401	401	401
12-PRI VISC/DENSITY	0	0	0	0	0	0	0	0
13-PRI OP/DP/OP/DP	0	0	0	0	0	0	0	0
14-SEC VISC/DENSITY	0	0	0	0	0	0	0	0
15-SEC OP/DP/OP/DP	0	0	0	0	0	0	0	0

SUBROUTINE DEPENDENT K ARRAY DATA - - -

KR(97, 16)= 125 KR(97, 17)= 0 KR(97, 18)= 0 KR(97, 19)= 0 KR(121, 16)= 0
KR(121, 17)= 0 KR(

COMPONENT NO. =		128	0	0	0	0	0	0	0
SUBR. TYPE =		FLOMET							
VR									
1-TOTAL PRI FLOW	P	.305539-01	.000000	.000000	.000000	.000000	.000000	.000000	.000000
2-TEMPERATURE	R	57.0767	.000000	.000000	.000000	.000000	.000000	.000000	.000000
3-DUCT OUTLET P	I	.231594	.000000	.000000	.000000	.000000	.000000	.000000	.000000
4-COMP OUTLET P	M	.231594	.000000	.000000	.000000	.000000	.000000	.000000	.000000
5-NON-COND FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
6-COND VAP FLOW	R	.305539-01	.000000	.000000	.000000	.000000	.000000	.000000	.000000
7-COND LIQ FLOW	Y	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
8-N-C SP HEAT		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
9-N-C MOL WT	S	.100000-29	.000000	.000000	.000000	.000000	.000000	.000000	.000000
10-OXYGEN FLOW	I	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
11-DILUENT FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
12-CO2 FLOW	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
13-TRACE CTM FLOW		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
14-SPCL FLOW 1	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
15-SPCL FLOW 2	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
16-SPCL FLOW 3	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
17-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
18-SPCL FLOW 5		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
19-SPCL FLOW 6		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
20-TOTAL SEC FLOW	S	.580737-01	.000000	.000000	.000000	.000000	.000000	.000000	.000000
21-TEMPERATURE	E	60.3882	.000000	.000000	.000000	.000000	.000000	.000000	.000000
22-DUCT OUTLET P	C	1.19663	.000000	.000000	.000000	.000000	.000000	.000000	.000000
23-COMP OUTLET P	O	1.19663	.000000	.000000	.000000	.000000	.000000	.000000	.000000
24-NON-COND FLOW	N	.265815-01	.000000	.000000	.000000	.000000	.000000	.000000	.000000
25-COND VAP FLOW	D	.314922-01	.000000	.000000	.000000	.000000	.000000	.000000	.000000
26-COND LIQ FLOW	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
27-N-C SP HEAT	R	.361931-02	.000000	.000000	.000000	.000000	.000000	.000000	.000000
28-N-C MOL WT	Y	.433297	.000000	.000000	.000000	.000000	.000000	.000000	.000000
29-OXYGEN FLOW		.615289-02	.000000	.000000	.000000	.000000	.000000	.000000	.000000
30-DILUENT FLOW	S	.203004-01	.000000	.000000	.000000	.000000	.000000	.000000	.000000
31-CO2 FLOW	I	.128180-03	.000000	.000000	.000000	.000000	.000000	.000000	.000000
32-TRACE CTM FLOW	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
33-SPCL FLOW 1	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
34-SPCL FLOW 2		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
35-SPCL FLOW 3	D	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
36-SPCL FLOW 4	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
37-SPCL FLOW 5	T	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
38-SPCL FLOW 6	A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
39-DH, C, DP PRI	P	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
40-LE, N, K DUCT	R	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
41-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
42-DH, C, DP PRI	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
43-LE, N, K COMP	S	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
44-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
45-DH, C, DP SEC	C	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
46-LE, N, K DUCT	O	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
47-FF AREA	E	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
48-DH, C, DP SEC	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
49-LE, N, K COMP	F	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
50-FF AREA		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
51-COMP SOURCE TEMP		.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000

52-EFF SUMMED COND	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
53-COMP QTOTOL LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
54-AMBIENT GAS TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
55-AMBIENT UA	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
56-AMB CONV Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
57-AMB WALL TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
58-AMB SCRIPT(F)*A	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
59-AMB RAD Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
60-STRUCTURE TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
61-STRUCTURE KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
62-STRUCTURE Q LOSS	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
63-INSULATION TEMP	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000
64-INSULATION KA/X	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000	.000000

SUBROUTINE DEPENDENT V ARRAY DATA - - -

VR(128, 65)=	.00000	VR(128, 66)=	12.993	VR(128, 67)=	1.2993	VR(128, 68)=	.58074	VR(128, 69)=	.26581
VR(128, 70)=	.31492	VR(128, 71)=	.00000	VR(128, 72)=	.61529-01	VR(128, 73)=	.20300	VR(128, 74)=	.12818-02
VR(128, 75)=	.00000	VR(128, 76)=	.00000	VR(					

COMPONENT NO. =	128	0	0	0	0	0	0	0	0
SUBR. TYPE =	FLOMET								
KR									
1-SUBR NO./EXV/EXK	29012000	0	0	0	0	0	0	0	0
2-PRI SOR/FLO CODE	-12202	0	0	0	0	0	0	0	0
3-PRI SPFL TYP 1-3	0	0	0	0	0	0	0	0	0
4-PRI SPFL TYP 4-6	0	0	0	0	0	0	0	0	0
5-SEC SOR/FLO CODE	2	0	0	0	0	0	0	0	0
6-SEC SPFL TYP 1-3	0	0	0	0	0	0	0	0	0
7-SEC SPFL TYP 4-6	0	0	0	0	0	0	0	0	0
8-NEXT COMP/CABIN	2600000	0	0	0	0	0	0	0	0
9-COMP NSTR 1-9	100000000	0	0	0	0	0	0	0	0
10-COMP NSTR 10-18	0	0	0	0	0	0	0	0	0
11-NCFL/NLFL/NPASS	401	0	0	0	0	0	0	0	0
12-PRI VISC/DENSITY	0	0	0	0	0	0	0	0	0
13-PRI OP/DP/OP/DP	0	0	0	0	0	0	0	0	0
14-SEC VISC/DENSITY	0	0	0	0	0	0	0	0	0
15-SEC OP/DP/OP/DP	0	0	0	0	0	0	0	0	0